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PRESIDENTIAL ADDRESS

By D. J. Gibb Wishart, M.D.

Toronto.

THIS gathering to-night in the city of Peterborough marks an epoch in the history of our branch of the Canadian Medical Association, in that for the first time in our history, we have elected to hold our sessions in one of the smaller centres. The burden thus thrown upon a comparative few of our medical brethren has been, as you will agree from the welcome you have already received, most loyally shouldered, and the experiment has become a complete success. On your behalf, I beg to thank Dr. Cameron and the members of the Peterborough Medical Society for their hard, resolute, and unfailing labour in the preparation involved for our gathering here this week.

For the first time, too, we meet in conjunction with the Provincial Officers of Health, and I trust that the result of this union of effort will be followed up by a continuation of these combined meetings. It will benefit both associations. United we stand, divided we might fall.

Before proceeding to the subject proper of my address this evening, I must beg your forbearance while I refer to several matters of common interest to us as professional brethren.

We are, as a nation, in the midst of a great war, and we, as a profession, have risen to the emergency in Canada, and therefore naturally in the province of Ontario.

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*Delivered to the members of the Ontario Medical Association, May 26th, 1915.

"Remember when those tales you read
Of rude but honest 'Canayen,'
That Joliet, La Verandrye,
La Salle, Marquette, and Hennepin,
Were all true 'Canayen' themselves—
And in their veins the same red stream
The conquering blood of Normandy
Flowed strong, and gave America
Coureurs du bois and *voyageurs*
Whose trail extends from sea to sea."

It is a matter of pride to be able to state that thus far we have provided:

1. A Base Hospital, No. 4, from the University of Toronto, of one thousand and forty beds, a staff of thirty-five physicians and surgeons, and twenty medical students in the rank and file.

2. A Casualty Clearing Hospital, No. 2, with a staff of physicians and surgeons, and over thirty-nine medical students and young graduates in the rank and file

3. Two further hospitals have been offered to the Government, one by the Western University, and the second by the Medical Society of the city in which we are meeting now. The handsome offer of the Peterborough Medical Society, which numbers twenty-five all told, was to furnish a Stationary Hospital with medical staff, thirty-five nurses and rank and file, together with the needful supplement of the government issue in the way of initial supplies, and in addition, to guarantee $350.00 per month until the close of the war, to be used for comforts and necessities for the men. It will be difficult to find an equal of this offer, and you will agree with me that the Peterborough medical men are a force to be reckoned with. Congratulations to the Medical Society of Peterborough!

4. Over forty medical officers have accompanied regiments and field ambulances, etc., and many more are awaiting orders. Not a few of our brethren are enrolled in the combative ranks, and some of these have already shed their blood for our liberties. In No. 1 General Hospital, under the command of the last president of the Canadian Medical Association, our genial Dr. Murray MacLaren of St. John, there were four officers from Ontario, and in No. 2 General Hospital, fourteen. In reply to a request from the British War Office for Canadian medical men, offering to give them temporary commissions in the Royal Army Medical Corps, over one hundred and twenty-five responded from Ontario, and thirty-five of these are now on their way to their posts of duty

In addition to this long roll, training units were established in each of our provincial universities, in which our students of medicine

were not behindhand in enrolling. It has been impossible for me to obtain the exact figures, but in the Western University, one hundred and sixty students were in training. Queen's has sent with the Army Medical Corps, First Contingent, three doctors and seven undergraduates; with the Duchess of Connaught's Hospital at Cliveden, twenty-one graduates and nine undergraduates; and these are additional to the large body of students who took the Officers Training Corps drill. In Toronto, there were over eighteen hundred students in the Officers Training Corps, of whom four hundred and fifty were from the Faculty of Medicine. Long after the war has ended, and God grant it may be soon, the effect of the self-sacrifice exhibited by the practitioners and students of medicine in leaving wives, children and lucrative practices, or in abandoning a course of study attained after years of effort, just when the goal came into view, will continue to clarify our vision, and give us a truer perspective. We are reminded of the words of our Master, "but I am in the midst of you as he that serveth." Noblesse oblige.

The Germans may at least indirectly be credited with one good deed, in that, owing to the necessity which arose last September that holders of the licence of the College of Physicians and Surgeons of Ontario should proceed with the Canadian forces to the British Isles, and later to the Continent, and thus work under the War Office, it became obligatory upon the part of our Provincial Council to take the necessary steps to establish medical reciprocity with Great Britain. The Council passed the enabling legislation on the 22nd of December last, and when the Ontario House rose at Easter, the Lieutenant-Governor gave the Royal assent to the Ontario Medical Amendment Act, 1915. A doctor holding a qualification to practise in Britain may now register in Ontario, and vice versa. Thus Ontario is now in line with the provinces of Prince Edward Island, Nova Scotia, New Brunswick and Quebec, and a step forward has been taken in regard to the creation of one professional standard for the British Empire. Those gentlemen who drew up the provisions of the Act of British North America and brought into being our Dominion of Canada, may have acted wisely in leaving the control of education to the respective provinces, but should, in the light of subsequent events, have excepted the profession of medicine. We have long laboured under the yoke then placed upon our necks, and every step in the process of release must be hailed with triumph, for we belong to a profession which is bound only by the inadequacy of the human mind to comprehend the height and depth and breadth of the states of health and disease. As Osler writes, "A man who presents evidence of proper training,

who is a registered practitioner in his own country, and who brings credentials of good standing at the time of departure, should be welcomed as a brother, treated as such in any country, and registered upon payment of the usual fee." And again, "Medicine is the only world-wide profession, following everywhere the same methods, actuated by the same ambitions, and pursuing the same ends. This homogeneity, its most characteristic feature, is not shared by the law, and not by the church, certainly not in the same degree. While in antiquity the law rivals medicine, there is not in it that extraordinary solidarity which makes the physician at home in any country, in any place where two or three sons of men are gathered together. Similar in its high aims and in the devotion of its officers, the Christian Church, widespread as it is, and saturated with the humanitarian instincts of its Founder, yet lacks that catholicity,—urbi et orbi,—which enables the physician to practise the same art amid the same surroundings in every country of the earth. There is a unity, too, in its aims—the prevention of diseases by discovering their causes, and the cure and relief of sickness and suffering. In a little more than a century, a united profession, working in many lands, has done more for the race than has ever been accomplished by any body of men before."

In the *British Medical Journal* of November 21st, last, there was published an article by Prof. C. Jacobs, of the University of Brussels, in which in few, yet pregnant, sentences he drew a picture of the hideous sufferings into which the cruelty of Germany had plunged our Belgian confrères in medicine and pharmacy. At least one fifth of these two professions had been reduced to abject poverty. Of these, says Prof. Jacobs, "many of them, victims of a barbarian foe, are homeless, deprived of their laboratories, instruments, and their medical stores. What will become of those that still remain of our people, threatened as they are by the grim havoc of war and by contagious diseases, its constant followers? I have witnessed such misery amongst them. Some have had to work as navvies in order to have a few pence in their pockets; others have told me that they have not seen bread for a fortnight, but had lived exclusively on potatoes. Others had a meagre bunch of straw laid on the bare ground as a bedstead; the only pair of boots owned by one of them was falling to pieces in tatters. Men I have seen were dressed in torn garments and their children were in rags. One of my colleagues had to live on wayside herbs for three days and three nights and his wife shared his fate. A professor of a university, bereft of everything, was, when I saw him, in dire want of a bed, and another of equal academic standard was wandering haggard over the countryside searching in vain for a

beloved family. And some of our ranks have been taken as hostages, others have been shot, and their widows and orphans have been deprived of everything."

This appeal to our sympathies, at once brought about in Britain the foundation of a most representative committee, under the chairmanship of Sir Rickman J. Godlee, who visited this country in 1913, and upon his request a committee for Canada was shortly afterwards formed, consisting of the leading representatives of the profession in every province. I am happy to state that the response from our brethren throughout the length and breadth of the Dominion has been most enthusiastic, prompt, and self-sacrificing, and that the cash in hand to date amounts to the handsome sum of $7,622.00, of which Ontario has contributed $4,919.00. In addition to this, the sum of $2,600.00 was forwarded by a French committee in Montreal, so that the total for Canada amounts to $10,222.00. From the *British Medical Journal* of the 24th of April, we learn that the British committee to whose care the Canadian committee has remitted to date the sum of $6,916.00, reports that £964 10s. had been forwarded to Belgium to meet the urgent needs of Belgian doctors and pharmacists remaining in their own country, while a further sum of £350 had been devoted to the purchase of drugs and clothes, and by way of loans. The total sum received by the British committee according to the same authority amounts to £10,012 11s. 2d.

While we are pleased at the results attained, we must remind ourselves that if poor Belgium has passed through the fire already, its furnace of suffering will be heated yet again seven times, in the slow and awful torture which must be inflicted upon its cities and citizens during the process of the expulsion of the ruthless foe.

As Professor Sarolea has stated in his Toronto addresses, so full of soul anguish, and yet so resolute, Belgium is between the upper and nether millstones, and will be ground to dust. The need for help will outlast the war, and neither must our purse strings be drawn, nor our sympathies dried up, until our professional brethren in Belgium are once more reinstated. "When the day comes for the nations to adjust the balance, and right the wrongs which Belgium has suffered, one of the first duties of the medical profession throughout the world will be to see that the practitioners who have played so distinguished and useful a part in the life of their country are reinstated. We cannot at once rebuild the houses of Belgian doctors, or restock the shelves of Belgian pharmacists, but it is clear that the people require prompt medical attention, and it is a debt of honour to try and meet the immediate necessities of their doctors and pharmacists."

To-morrow afternoon there will be placed before you for consideration the results of the labours of Dr. Wallace's committee upon affiliation with the county and town medical societies. I trust that you will decide to accept the recommendations offered.

Were admission to the county and town society, within whose borders a physician practices, made the one portal of entrance to the provincial body, and through the latter to the Dominion Association, all doubt would be removed as to the eligibility of the candidate. He would literally be judged by his peers, a truly British method. On the other hand, the impossibility of obtaining admission to the Dominion or provincial body, if refused by the local society, would serve to regulate the steps of the beginner in practice. It is in the smaller towns and country districts that conditions are most favourable for mutual misunderstandings. Only those who have been brought up in such surroundings can appreciate how hard it is for physicians to keep on good terms with one another. The practice of medicine calls equally for the exercise of the heart and the head.

The association of all the physicians of a district in a society where they may frequently meet with one another, and so learn to value the good points, and excuse the bad points of their confrères, will do much to unite the profession in this province, and prevent misunderstandings. These beneficial results are obvious, and extremely valuable, but there is another end to be gained from the scheme proposed, an end to which no real approach has ever been made by our Canadian profession hitherto, namely, the enrollment of every member of the profession in an organized whole, which may speak with the authority consequent upon its composition, upon any matter which affects its welfare, or that of the health of the public. At present, associations and societies may only speak for their respective members, and a government may decide to consider these non-representative; whereas there are many questions, the solution of which cannot be properly secured without the aid of our profession. Assemblies, conferences and synods speak for every member of the various religious bodies, and the benchers for the lawyers, but our profession has no united voice, nor will it have until each practitioner be enrolled in a common membership of a common body, and recognise that he belongs to a guild, the interests of which are incompatible with all professional bitterness, all rancour, or personal hostility. The brethren must dwell together in unity.

The attention of the representatives in both houses of Parliament should be directed by our members to the Act for the curtailment of the sale of habit-forming drugs,—opium, heroin, codeine, cocaine and

morphia—which was enacted in Washington recently. The above-mentioned drugs, together with all like preparations, are withdrawn from sale except under very restrictive conditions, which, if carried out in the spirit of the Act, will tend to minimize the evil, if not to wipe it out altogether

"No person or company may sell one of these articles, except under licence of the Bureau of Internal Revenue. The consumer of the dangerous drugs must present either a prescription or an order written by himself, for the drug in question, which order calls for a full description of the purchaser, including age, colour of eyes, occupation, etc., and is later examined and reported upon by a government inspector. The sale of the drugs, in fact, is made so irksome to both parties in it, that it is expected that the drug victim, or the possible drug victim, will shrink from the red tape and the prospect of exposure which the law has provided for drug buyers and users." It is stated that the result of the passage of this law already is that every institution for the treatment of the victims of the drug habit is crowded with patients who would rather be freed from its curse, than attempt to satisfy their cravings under the difficulties provided by the Act. Our own laws in regard to the sale of similar drugs may be improved with advantage to the inhabitants of Canada, and the results of the passage of this act in the United States should be carefully noticed, with this in view. I trust that you will individually keep your member posted so that a further important step in preventive medicine may be gained.

The subject which I have chosen as the main topic of this year's Presidential Address is "The Evolution of the Specialist in Oto-Laryngology," yet what I have to say will apply equally perhaps to any of the so-called specialties. The subject conveniently arranges itself under four heads; (*a*) The definition of a specialist; (*b*) The need for his existence; (*c*) The training required; (*d*) The nature of his relationship to the general practitioner.

In developing this subject, I shall require to use some plain speech, because between the degrading, but alluring effect of the establishment of certain polyclinics or postgraduate schools, where, to quote the Carnegie Report, "the training is of a practical, not of a fundamental, or intensive kind," "calculated to 'teach the trick,' or perhaps better to exhibit an instructor in the art of doing it," and on the other hand, the desire of the wearied practitioner to get into something "easy", this country is threatened with becoming burdened by a load of ill-trained specialists.

Believing that, in the words of Oliver Wendell Holmes, "fear

of open discussion implies feebleness of inward conviction, and great sensitiveness to the expression of individual opinion is a mark of weakness," and disclaiming all intention to offend, I invite your attention and forbearance.

A specialist has been defined as "one who knows as much about all parts of his subject as any, and more about one part of it than any other," but I would paraphrase this definition and bring out its meaning more fully. A specialist is one who, *after* completing the usual time of medical study, and obtaining his degree, pursues a further course of instruction over a number of years, in some limited field, and abandoning the practice of every other branch of medicine, confines himself solely to that branch in which he has thus become qualified to speak with authority. No one has a right to pose as a specialist who has not proved his title to do so by such a prolonged course of special study, and let me remind you that the cards which some of our members permit to appear in the advertising columns of the newspapers reading somewhat as follows: "Dr. ———, Physician and Surgeon; Graduate of the ——— University; Licentiate of the College of Physicians and Surgeons of Ontario (as if he could practice at all without this). Special attention given to Diseases of the Eye, Ear, Nose and Throat," are strictly unethical, according to the code of this Association, and in my personal opinion, beneath contempt.

The backbone of our profession is the general practitioner. As Osler writes, "There never was a time in our history in which he was so prosperous, so much in evidence, in which his prospects were so good or his power in the community so potent. He still does the work, that great mass of routine practice which brings the doctor into every household in the land, and makes him, not alone the adviser, but the valued friend. He is the standard by which we are all measured. What he is, we are; and the estimate of the profession in the eyes of the public is their estimate of him. A well-trained sensible doctor is one of the most valuable assets in a community, worth to-day, as in Homer's time, many another man. To make him efficient is our highest ambition as teachers; to save him from evil should be our constant care as a guild."

But medicine advances by leaps and bounds, and it is absolutely impossible for one brain to compass the length and breadth of medical knowledge. Nor is it reasonable that the man just graduated should be expected to be equipped with a full knowledge of medicine, embracing all the newest procedures, and ultimate tests in every specialty. If this were demanded, the curriculum of the medical course would be stretched out by many years, and the task of entering upon the prac-

tice of the healing art, already difficult enough, would be made impossible for the average man or woman. In addition, the pecuniary results to be obtained afterwards would not be worth the investment of time and money. Our licence to practice does not even yet demand that the graduate be able to recognize a membrana tympani. The hearing of a few lectures will not teach him this. In the Universities of McGill and Toronto, it is only very recently that the course has been made clinical, instead of didactic.

The public is both ignorant and superstitious; they have been accustomed to think that the letters M.B., of M.D., C.M., mean that the owner of these mystical characters is possessed of a complete knowledge of all things medical. On the other hand, you know and I know, that we are vastly ignorant, and that medicine is far from an exact science, and therefore we should strongly combat this wrong opinion on the part of the general public.

Reason is there, and the very best, that men should specialise, should fit themselves to know all there is to know upon some one of the various branches of the healing art.

The specialist exists to give assistance to his brethren, the general practitioners, not to enter into competition with them in any shape or form.

But if the specialist exists for the assistance of the general practitioner, I would have the latter fixed in his determination to demand high qualifications of those whom he calls upon for such assistance. What should those qualifications be?

1. An excellent general preliminary education, including a knowledge of the more important modern languages, an indispensable accomplishment for one who must follow the international literature of the day.

2. A postgraduate position as hospital intern, preferably in medicine, but better still in both medicine and surgery.

3. A year or more in general practice, during which he may try himself out, and when he chooses his specialty, choose wisely.

4. If the choice be Oto-Laryngology, then must there follow an internship of at least eighteen months, devoted exclusively to the special subjects where he will toil daily with patients in a special clinic, mastering the details of examination and diagnosis, and be trained under a master eye in the technique of operations.

5. Lastly, he must place a coping stone of a further year at some university where he will obtain postgraduate instruction upon;

(1) Clinical diagnosis and treatment.

(2) Functional tests especially.

(3) Bedside work on surgical cases.

(4) Surgical practice on the cadaver.

(5) Practical treatment and minor operations in the out-patients' ward.

(6) Demonstrations and lectures on normal and pathological anatomy, histology and physiology.

(7) Diagnosis and pathology of labyrinth diseases.

When finally he seeks the suffrage of his fellows of the general profession, he must become attached to a hospital where he can maintain his contact with a public clinic, for otherwise he can never hope to advance, or even to keep abreast of his subject.

I have given you above the qualifications demanded by the American Laryngological, Rhinological and Otological Society, and also of the hospital where I have the honour to control the Oto-Laryngological service.

Am I too ambitious in making these demands? No! If we, as specialists, are to deserve the respect of our confrères, we can demand no less.

Unfortunately, although specialism, with its implicit claim of superior skill in one direction, is now recognised as both efficient and useful, it remains on a very informal basis, and few universities are yet equipped to give adequate preparation for specialising, but a better day is dawning, and this function will be recognised by the universities, and indeed specialisation will not be allowed without such university postgraduate training.

As the Carnegie Report says, "Improved medical education will undoubtedly cut the ground from under the independent postgraduate school as we know it. This is not to say that the undergraduate medical curriculum will exhaust the field; on the contrary, the undergraduate school curriculum will do only the elementary work; but that it will do, not needing subsequent and more elementary instruction to patch it up. Graduate instruction will be advanced and intensive, the natural prolongation of the elective courses now coming into vogue. For productive investigation and intensive instruction, the medical school will use its own teaching hospital and laboratories; for the elaboration of really thorough training in specialties resting on a solid undergraduate education, it may use the great municipal hospitals of the larger cities. But advanced instruction along these lines will not thrive in isolation. It will be but the upper storey of a university department of medicine. The postgraduate schools of the better type can hasten this evolution by incorporating themselves in accessible universities, taking up university ideals, and submitting to reorganization on university lines."

The truth is, we have too many so-called specialists, the damaged fruit of commercial postgraduate colleges, managed by a board of stockholders for the sake of the almighty dollar. The unfinished product of these institutions has resulted in the establishment of a class of mediocre specialists, who often bring discredit upon the whole institution of specialism. To quote from a recent writer in the *New York Medical Journal*, "The true specialist can never afford to stop working scientifically. The continued wave of progress in medicine must be closely followed by him, lest he remain behind. In his practice the true specialist should be before all, a reliable diagnostician. Acquaintance with the commoner diseases of any organ may safely be expected of any well-trained and fairly experienced general physician. But we have a right to demand from the specialist thorough and easy familiarity with rare and exotic affections also; in other words, in his rôle of consultant, he should be an expert. Likewise he should be fully at home in all therapeutic methods pertaining to his specialty." "Whereas to the mediocre specialist his specialty is nothing more than a milch cow. Such a man probably enters the medical college with a firm determination of eventually 'making a specialty' of a certain class of diseases. While in college he considers everything which is not directly related to his prospective fields as irrelevant, gets through his medical course easily, about well enough barely to pass his examinations without being plucked. His sheepskin still damp from the signatures of the faculty members, he at once goes abroad for special studies, to Paris, London, Vienna. These studies are largely devoted to a minute investigation of the most famous cafés, restaurants, theatres and other places of amusement; a few special courses by privatdocents or assistants, given in a poorly understood foreign language, are, however, usually taken along by the way, as it were. Six or twelve months later he arrives home, where his friends have already been prepared by numerous letters of his wonderful attainments abroad, armed with instruments of the latest pattern, declaiming about the very most recent methods of treatment of which he is now the only possessor, and superciliously sneering at old-fogeyish Dr. X whose competitor he starts out to become."

The nature of the relationship of the specialist to the general practitioner must be considered from opposite sides. The specialist must remember that he is dependent for his practice upon the general practitioner, and that his advice is sought for the purpose of a skilled diagnosis in determining the line of treatment, which often may be carried out fully by the family doctor. He is to be the ally,

not the competitor, ever ready to support, and never willing to supplant. It is up to him, in association with the pathologist, the physiologist and the clinician, to do the bulk of the real work in the science and art of medicine.

On his side the general practitioner should make free use of the specialist. Is he to refer all cases in Oto-Laryngology to the specialist? No. But it is wrong for him to fail to do so, when he cannot fairly claim that he possesses the requisite knowledge of the conditions before him, which will enable him to serve the best interests of his patient. His conscience should tell him whether he has arrived at the point where his patient should have the benefit of a knowledge beyond his own. If this point is reached, failure to employ this extra knowledge is nothing short of criminal. If he is absolutely steadfast in calling to his aid every possible means of securing the best interests of his patient, he will surely and steadily build up for himself a reputation for reliability and carefulness, which will establish his high standing in the community, and give him the priceless possession of a conscience void of offence toward all men.

To do the opposite is to descend to the commercial basis of the public, the results of which are seen in the deplorable editorial attitude of many of our leading newspapers towards all things medical, in the scepticism of the legislature to the altruistic intentions of the profession as a body, and in the too widespread opinion among the general public, that the physician is not sincere in the promotion of measures which might prejudicially affect his pocket, because it would not be "business."

As Osler puts it, "Faith is the great lever of life; without it man can do nothing; with it, even with a fragment as a grain of mustard-seed, all things are possible to him. Faith in us, faith in our drugs and methods, is the great stock-in-trade of the profession." "To wrest from Nature the secrets which have perplexed philosophers in all ages, to track to their sources the causes of disease, to correlate the vast stores of knowledge, that they may be quickly available for the prevention and cure of disease, these are our ambitions."

BIBLIOGRAPHY

The *Journal of Oto-Laryngology, Rhinology and Otology*, May, 1912.

Carnegie Foundation, Medical Education in U. S. A. and Canada, *Bulletin Four*, 1910.

British Medical Journal, November 21st, 1914.

Cleveland Medical Journal, January, 1909.

New York Medical Journal, March 1st, 1913.

"*Aequanimitas*," Osler.

Journal American Medical Association, Vol. xxxvi., 1901.

New York Medical Journal, Vol. 95, 1912.

PROPHYLACTIC INOCULATION AGAINST TYPHOID FEVER IN THE FOURTH MILITIA DIVISIONAL AREA OF CANADA*

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AND

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THE efficiency of an army in the field to-day depends largely upon the factors that have made armies efficient in the past,—training, generalship, equipment, and the physical condition of the troops. The constant developments that have taken place along each of these lines have in most instances been gradual, though at times they have been almost miraculously sudden. This is especially true of certain aspects of the medical sciences. These developments have come with specialization in the arts and sciences of war; a specialization in those scientifically proven measures which adapt themselves to the peculiar demands of a force that must at all times be mobile.

In this specialization medicine, in the broad sense of the word, has received most careful consideration. The medical interest in the fighting man has gradually broadened from that of the earlier days, when only those wounded or ill in camps were cared for, to an interest which in its scope deals with the recruit from the time of his enlistment and even with his family before him, all through his military career, and with his remains when he has paid the toll of war. This interest can in no sense be looked upon as a narrow interest. It is an interest as broad as medicine itself, and commands the best thought and the best energy of the best men in all of its branches.

Military authorities early realized the practical benefits to be derived from the application of the truths learned by the study of hygiene and preventive medicine, and have in general, so far as is

* From the Pathological Laboratory of the Montreal General Hospital.

possible and practicable, adapted these measures to their fighting forces. The practical application of this comparatively recently developed science has added most substantially to the efficiency of armies and has developed a feeling of security among officers and men that counts for increased efficiency. The successful operation of those preventive measures that are applied to armies in the field to-day may play an important part in the final outcome of the present war. They might even determine it. Uncontrolled epidemics of certain diseases might take a heavier toll than shrapnel and rifle bullets. For this reason the preventive measures that to-day are so scrupulously enforced by the military authorities mean, when analyzed, a practical demonstration on a large scale of the chief principles of preventive medicine and hygiene. To a particular phase of one branch of preventive medicine—prophylactic inoculation against typhoid fever—we wish to refer in some detail.

It is not necessary that we review the convincing statistics that have been published by army officers of Great Britain and the United States, nor is it necessary to go into the history of antityphoid inoculation. It is well known to all. But it has had its difficulties. These difficulties have gradually been surmounted until to-day an army unprotected against typhoid fever is an army whose efficiency, however great to-day, may be materially diminished to-morrow. The Militia Department of Canada early realized this and antityphoid inoculation in the Canadian Expeditionary Force has kept pace with recruiting.

In one militia divisional area we have had some part in this fight against typhoid fever, and wish here to record some of the data in regard to it.

One of us, anticipating its possible need in the present great war, obtained last summer a culture of *B. typhosus* from Sir William Leishman's laboratory in London. This was a transplant from the same culture used by him in the preparation of anti-typhoid vaccine for the British Army and by the United States Army in the preparation of the vaccine used by them—a culture selected chiefly for the reason that its efficiency in terms of protective reaction on the part of the body is high, and the symptoms following its inoculation are slight.

In the preparation of the vaccine made by us we have grown the organisms in bulk, on plain agar corrected to 1·5 per cent. acid to phenolphthalein. The agar is made stiff, 2·4 per cent., put into Blake bottles, slanted, and allowed to cool. By using an agar of this percentage the organisms may be easily removed from the medium without tearing pieces of the medium off. The use of agar slants as

made above has the advantage that accidental contaminations are more easily recognized than when the organisms are grown in some fluid medium, and the possible objection to injecting peptone-containing fluid avoided. After the Blake bottles have been inoculated and allowed to remain in the incubator at 37° C. for eighteen hours, they are removed and there is added to each of them 5 c.c. of sterile normal salt solution. By means of a properly bent platinum needle the surface growth is easily scraped off and mixed in the salt solution at the bottom of the bottle. The mixture is then transferred by means of a sterile pipette to a sterile culture tube which has been drawn out in its upper third. This tube is now sealed in the flame and placed in a vaccine shaker for fifteen minutes, when the colonies and clumps of organisms are thoroughly broken up. All except 2 c.c. of this mixture, which is kept for bacteriological examination, is added to a flask containing a known quantity of sterile normal salt solution, and thoroughly mixed. The amount of sterile normal salt solution used is optional. We have used a known quantity in order that we might calculate the number of cubic centimetres of finished product that it was necessary to be prepared for. As the amount of vaccine made at one time has, as a rule, been five litres, the amount of sterile salt solution to which the mixture of organisms is added, has been 500 c.c. We have used 500 c.c. as this amount is easy to handle.

In order that the bacterial count of this mixture may be exact, before the original bacterial mixture is added to the sterile salt solution, there is removed from it as many cubic centimetres as there are cubic centimetres of bacterial mixture. This mixture contains far too many organisms to be used as it is, but it is easy to apply heat to this amount, and from it the final dilutions are readily made.

The number of organisms per cubic centimetre of this mixture is now determined. We have done this by means of a specially made counting chamber, as in our hands this method is more accurate than the others we have tried.

The two cubic centimetres left in the culture tube containing the original bacterial mixture is taken for bacteriological examination in order that one may be sure that the culture used is a pure culture.

The method we have employed for killing organisms is as follows. The flask containing the bacterial mixture is placed in a water bath with heat regulated so that the temperature of the mixture within the flask is kept at 54° C. This is made easy and accurate by putting into a second flask, of the same size and shape as the one containing the bacterial mixture, as many cubic centimetres of normal salt solution as there are cubic centimetres of fluid within the

flask containing the bacteria. A thermometer is passed through the cork in the flask containing the normal salt solution and extended down into the central portion of its contents. This control flask and the one containing the bacterial mixture are fastened side by side in a wire basket which is lowered into the water bath so that the water in the bath comes well above the fluid in the flasks. If the flasks are gently shaken while in the bath, the heat from the water in which they are placed is more uniformly transmitted to the fluids within them. The fluids in the flasks are kept at 54° C. for 45 minutes, when the flasks are removed and allowed to cool. Previous to heating the bacterial mixture, 500 c.c. of normal sodium chloride is placed in each of a number of flasks. These are sterilized in the autoclave and to each of them 0·25 per cent. of carbolic acid is added. The flasks are thoroughly shaken in order that the carbolic acid may be uniformly distributed. As the number of organisms per cubic centimetre in the flask which has been heated is known, it is easy to estimate the number of cubic centimetres of the heated bacterial mixture that it is necessary to add to each flask containing the carbolized normal salt solution in order to bring its bacterial content up to 1,000 million organisms per cubic centimetre. Before the correct number of cubic centimetres of the bacillary emulsion is added, an equal amount of fluid is removed from each flask. A few cubic centimetres of the fluid containing the organisms, to which heat has been applied, is again tested bacteriologically. Both ærobic and anærobic cultures are made.

The completed vaccine may be put into containers at once or stored in the flasks in bulk. Whether it is to be bottled or kept in bulk to be bottled later, a final bacteriological examination is made after it has been in its final containers for three days. Besides making ærobic and anærobic cultures we have examined for *Bacillus tetanus*. We have never found contaminating organisms but once, when *B. subtilis* developed on one of the agar slants. It was readily recognized and the Blake flask in which it grew was discarded. We feel that repeated bacteriological examinations should always be made in order that every possible precaution may be taken to ensure the sterility of the finished product. It has been our rule that none of the vaccine is to be used before three weeks, or after four months, from the date of its preparation. An antityphoid vaccine at or beyond three weeks after its preparation seems to be more efficient than a freshly prepared one.

Antityphoid inoculation is not absolutely compulsory in the Canadian Expeditionary Force; the men are told of its advantages and are strongly advised to avail themselves of the protection it

offers. Insofar as we are able to learn, not a single individual of the Fourth Militia Divisional Area under the direct control of the A.A.D.M.S. has persistently refused to receive his inoculation.

The method of handling troops and the technique used in giving the inoculation, as practised by Major Muckleston and Captain McKim, have been as follows: when a body of troops is brought up for inoculation, they are carefully and plainly told of its advantages and are also as carefully told of the symptoms which are to be anticipated. No one is inoculated who is in any sense ill; acute rhinitis and the recent extraction of teeth have in a number of instances postponed the administration of the vaccine. The officer in command of the men inoculated is instructed to relieve them from duty for forty-eight hours and the inoculated men are given careful instructions in regard to their duty to themselves. They are to go to their homes or barracks at once, abstain absolutely from alcoholic drinks, take no violent exercise, and go early to bed.

The method of handling troops in large numbers is important. Where large bodies of men are to be handled, time must be considered but not at the expense of safety and accuracy. Discomfort to the individual, however slight, must be carefully considered.

The men are lined up in single file with arms bared to the shoulder. An area on the arm 10 cm. in diameter is painted with iodine, and precautions are taken to prevent touching this spot. 5 c.c. Record syringes with a number of needles are sterilized by boiling. Where bottles are used as containers for the vaccine, their caps are sterilized with alcohol or carbolic, and absorbent cotton soaked in the solution used is kept over them. The hypodermic needle attached to the syringe is plunged through the cap and the syringe filled. By using a 5 c.c. syringe time is saved, as ten first inoculations or five second inoculations can be made from one syringe full. After each inoculation the needle is removed and another sterilized needle is attached by means of sterile forceps.

The site of inoculation has in all cases been the arm, about 10 cm. directly above the external condyle of the humerus. In right-handed men the left arm is used; in left-handed men the right. This point is selected for the reason that it is not too close to the large nerve trunks and large blood vessels. The injection is made subcutaneously; never into the muscle, as muscular injections are more painful than subcutaneous ones and for this reason interfere too much with the movements of the arm.

In most instances two inoculations, ten days apart, have been given. At the first, one-half c.c or 500 million dead organisms are

injected; at the second, one cc. or 1,000 million organisms. In a few instances the more ideal procedure of three inoculations has been employed. This has applied to certain individuals and to two units, those commanded by Col. H. S. Birkett and Lieut-Col. R. P. Campbell.

The reaction following the inoculation has been carefully watched by Major Muckleston, A.M.C., and Captain McKim, A.M.C., whom we thank for the data collected by them. The reactions have varied greatly. They may be divided into two groups, local and general. Both of these have varied within comparatively wide limits.

The milder local reactions consist of slight swelling and redness with slight tenderness about the point of inoculation. The more severe local reactions are characterized by swelling and redness of greater extent. In a few instances these have extended throughout the greater extent of the surface of the arm into which the injection was made. The pain likewise varied but in no instance has it been severe.

A most careful watch has been kept for infection at the site of inoculation. In no case has there been the slightest evidence of it.

The constitutional symptoms have likewise varied within wide limits. In most cases there is a feeling of depression within the first five hours after inoculation. Frequently this has been accompanied by headache, general malaise and pains in the joints. Several individuals who had had typhoid fever a number of years previous to their inoculation had pain in the joints, which they insisted was of the same character as that experienced during the early period of their typhoid fever. In a very small percentage of cases the general malaise with headache has caused sufficient inconvenience to keep the case in bed the following day. A certain percentage of cases have had a rise in temperature. In most instances this has been slight, though in one case it reached 103° F. A few individuals have complained of itching of the skin. It has been noted in this series as in others that the reaction is generally comparatively severe in those who have had or have chronic malaria.

A very few cases have had a slight diarrhœa following their inoculation.

One of the arguments of that group of individuals who are opposed to prophylactic inoculation in general, is that an inoculated individual is more susceptible to acute infectious diseases than an uninoculated one. In this series of over seven thousand cases there seems to be no reason for concluding that, in this comparatively large series, there has been any relation between antityphoid inoculation and increased

susceptibility to infection. The possibility of an increased susceptibility to infection was considered, and precautions were taken to minimize it. All inoculated individuals have been relieved from their duties for forty-eight hours and certain very definite instructions given to them. In the series under consideration, the inoculated men were not more susceptible to rhinitis, pharyngitis and tonsillitis than the uninoculated. It might be further stated that there has not been a case of typhoid fever develop in the troops since inoculation began, although there have been a number of cases in the cities where the men were in barracks.

In one instance it was advisable to inoculate a nurse ten days after an operation for appendicitis. There was a slight rise in temperature following the inoculation, but the wound showed no change and there was nothing in her convalescence even to suggest that her antityphoid inoculation had interfered in any way with her convalescence.

There has been considerable interest in the advisability of inoculating individuals who have had tuberculosis. We have had three instances where inoculations were given to men who had been treated for this disease. In these men the diagnosis was without question. Each of them had received sanitarium treatment and the lesions pronounced healed or inactive. Two of them were physicians. The reactions in these three cases were not any more severe than in the other men, nor has there been any untoward result from the inoculation. We would not leave the impression that we advocate the inoculation of those who have active tuberculosis. On the other hand, we would oppose it on the principle that such cases should not be subjected to any mental or physical conditions that might lower their resistance, if such could possibly be avoided. When one considers the high percentage of cases that have died of some other disease and yet show at post mortem evidence of tuberculosis—active, inactive, or healed,—it seems fair to assume that a considerable number of soldiers would show the same. The physical examination of troops to-day is done with such care that tubercular lesions, save the smallest inactive or healed ones, rarely pass undetected. Should a man with an inactive or an active lesion be taken into the army, and these lesions later extend locally, or from them a miliary tuberculosis result, antityphoid inoculation cannot be held wholly responsible for them. Infantry drill, rifle drill, and route marches test the endurance of the best of men, and surely nothing could favour more the development of activity in inactive lesions or increase the activity of active ones.

Circumstances have been such that all our vaccine has been put

in bottles closed with rubber caps. The emergencies of the present war have been such that regular vaccine rubber caps could not be secured. As a substitute we have used very heavy finger cots, and have found them perfectly satisfactory. In fact we know of no better rubber cap if it is properly prepared. We have prepared them as follows: the powder which adheres to them is removed. They are then soaked in weak carbolic acid for four hours, after which they are thoroughly washed in several changes of distilled water and rolled as follows. The cot is placed over the index finger, closely rolled upon itself completely up to the tip, when the tip is inverted. This gives a thick collar of rubber with a single thickness of rubber to close the mouth of the bottle. The rolled finger cots are now thoroughly sterilized by boiling, when they are ready to apply to the bottles. The sterile caps are removed from the water in which they were sterilized by sterile forceps, and forced over the necks of the bottles. The collar which results from rolling the cot upon itself fits tightly about the neck of the bottle. The comparatively thick rubber cap is easily punctured, and the punctured holes scarcely ever leak, even before the caps are paraffined. After the caps have thoroughly dried, they are dipped into hot paraffin.

We have supplied vaccine made as above for the inoculation of over seven thousand troops, and in no instance has there been an infected arm, nor have the local or constitutional reactions been in the least alarming. Neither is there any evidence obtainable that those inoculated were any more susceptible to acute infections than the uninoculated in the same barracks.

Permission for the publication of this article has been obtained from Col. E. W. Wilson, O. C. Fourth Divisional Area, Militia Headquarters, Montreal.

A THREE months' course for war probationers has been arranged at St. Bartholomew's Hospital, London. Courses of three and six months' duration have also been arranged at University College for the same purpose. The probationers will serve in military hospitals under fully qualified nurses. Four hundred applications have been received at St. Bartholomew's Hospital although not more than forty can be accommodated.

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PHTHISIS

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Part III

(*Continued from page* 388)

IT is of first importance to interpret the readings of the manometer correctly, not only at the initial puncture, but at subsequent punctures and during the introduction of gas.

Between the layers of the pleura there is normally a potential cavity which, in the cadaver, has a negative pressure of 6 mm. of mercury, or 82 mm. of water. Manometric fluctuations cannot take place until some air has been sucked into the pleura, or other potential space, by the yielding of the water column, or until there has been a leak from the lung, because of puncture by the needle. Morgan[51] lays stress upon the latter and attributes to it incorrect impressions of intrapleural pressures and of estimations of the amount of gas introduced. Fluctuations will vary directly, within certain limits, with the bore of the needle. The fluctuations of a small needle approach the true mean pressure, which is nearer expiration than inspiration, as recorded by a larger needle, *i.e.*, while reduced in range their average is higher.

Intrapleural pressure will be modified in normal persons by individual characteristics, as well as by the already mentioned site of puncture and decubitus. Aron[64] gives the average pressure for a normal man as $-4{\cdot}69$ mm. Hg. on inspiration, and $-3{\cdot}02$ mm. on expiration (-63 to -41 mm. H_2O).

In phthisical chests deeper respiratory movements and the retraction of the fibroid lung account for greater negative pressures when the pleural cavity is free. On the contrary, when adhesions are present, these will take up the natural retracting pull of the lung and there will be a reduced negative pressure, and the range of the fluctuations will also be less. Aron's pressures for a phthisical man are $-7{\cdot}49$ mm. Hg. on inspiration, and $-6{\cdot}83$ mm. on expiration (-101 to -92 mm. H_2O). We find the readings for the average advanced phthisical chest chosen for operation, in which some

adhesions are usually present, for ordinary respiration to be −120 mm. H_2O on inspiration, and −70 mm. on expiration. On deep respiration the excursion may be much increased, −300 mm. on inspiration, to −40 mm. on expiration, or more. The mean pressure is always on the negative side and on holding the breath in any phase of respiration pressure is maintained. We have found an exception to this test which is mentioned under paradoxical movements. Many patients have great difficulty in holding their breath on inspiration and this test sometimes seems to fail, as the negative pressure diminishes when the breath is apparently held. The breath can be held without difficulty on expiration. The several points are well illustrated in Charts I and II, taken from v. Muralt's paper.[60] These charts also contrast the difference between a free pleura and one with adhesions.

We find that a free pleural space of sufficient size surrounded by firm adhesions and with a strongly retracting lung underlying may give a pronounced negative pressure and wide fluctuations in ordinary respiration but the excursion on forced respiration is not as great as when a larger pleural space exists. When a network of adhesions exists in the pleura there may be but a slight negative pressure and small fluctuations of 5 to 10 mm.; but the mean pressure is negative. Pressures similar to those just mentioned may be found between the parietal pleural and the thoracic wall, a pull being communicated from the pleura. This is especially likely to be the case when there are adhesions between the pleural layers (Davies[26]).

If the needle has perforated the visceral pleura and lies in lung in free communication with bronchial air the manometer readings are materially different (Chart VI). The amplitude of fluctuation is marked, and modified by the depth of respiration and the freedom of communication with a bronchus. Inspiration and expiration have negative and positive pressures, respectively, and the mean pressure is always approximately 0. On holding the breath at any phase of respiration the pressure is not maintained but approaches 0 if the glottis is open. On the contrary, the pressure will be maintained if the glottis is closed (v. Muralt and others). The maintenance of pressure on holding the breath is, therefore, not an infallible test excluding the possibility of the needle point being in lung tissue.

When the lungs are emphysematous there may be small oscillations about a mean negative pressure, indistinguishable in themselves from those observed when the needle is in a small pleural space (Holmgren[62]).

If the needle has penetrated a blood vessel the pressure may be so low that no blood enters it; but, as has been mentioned previously, gas may be aspirated by the yielding of the water column to the slight negative pressure communicated during inspiration. There may be sufficient pressure, however, for blood to enter the needle, when a slowly rising pressure will be noted without oscillation, because of the capillary action in the needle and rapid coagulation. An unusual degree of pain may be complained of when the needle penetrates a blood vessel (Holmboe[65]).

The needle may possibly pass through the diaphragm into the abdominal cavity when a reversal of pressure for inspiration and expiration will be noted.

The manometer may be a great aid also during the introduction of gas by explaining the intrathoracic conditions that exist or the changes that take place. In a pleural space fairly free from adhesions there is a gradual rise in pressure proportionate to the amount of gas introduced, with a gradual lessening of the amplitude of fluctuations. The freer the space the slower is the rise in pressure. After the force of cohesion has been abolished by the introduction of a moderate quantity of gas, there is a further material retraction of the lung, according to Saugman and Hansen, with consequent rarefaction of the gas and an increased negative pressure. Compensatory enlargement of the side and increased respiratory movement may also possibly reduce the pressure. A litre or more of gas may be required to bring the mean pressure to 0 (Chart III). As the average pleural cavity will contain about 3,500 c.c. of gas (Davies), the amount of gas introduced will give some idea of the amount of compression of the lung that has been obtained.

When adhesions are pronounced the rise in pressure is more rapid, but is at first in proportion to the amount of gas introduced, then, as the limit of collapse is reached, pressure rises rapidly. The abruptness of the rise indicates the size of the cavity. If, after a litre of gas has been injected, the pressure is 40 mm. water, about half the cavity has been filled (v. Muralt). A rapid rise after a very small amount of gas, less than 50 c.c., has been injected, suggests the possibility of the needle being in a false space. The range of fluctuation is less than when adhesions are absent and may disappear with increasing pressure. If there is a fall in pressure, followed by a rise, it is probable that an adhesion has given way, provided that other leakage can be excluded (Chart IV, B).

When there is a network of pleural adhesions a few centimetres

of gas will cause a rapid rise of pressure, followed by a slow fall as the gas disperses. Each subsequent amount of gas causes a higher initial rise (Chart V). Similar readings may follow the introduction of gas between the pleura and chest wall.

If the needle is in the lung the gas introduced causes no rise of pressure, or only a transitory one, according to the freedom of communication with a bronchus. In an emphysematous lung there is a slow rise in pressure as if a pocket were being formed, but the gas escapes easily (Holmgren).

At subsequent fillings the manometer gives still further information and serves as a guide to the frequency of refills and the maintenance of an optimum pressure.

In the earlier months the fall in pressure between refills is a fair indication as to the rate of absorption of gas, and of the re-expansion of the lung. Later, as the lung becomes fibrosed, there is less reëxpansion, and, as the gas is absorbed, there is rarefaction so that the same direct relation between absorption and expansion no longer exists. Therefore, when the lung has reëxpanded, the rise in pressure, as the gas is introduced, will be gradual; when it remains collapsed there will be a slow rise at first, and later an abrupt rise (Hamman and Sloan).

Of great importance is the information given about the shifting of the mediastinum. When it is easily displaced the range of fluctuations is small, and the rise of pressure becomes disproportionately slow, after there has been a steady though slow increase of pressure to a certain point. After this point has been reached, only slight variation of readings may follow the introduction of several consecutive decilitres of gas. Compensation for the expansion of the affected side on inspiration is made by the encroachment of the functionating lung upon the mediastinum, and for contraction by expiration by the yielding of this lung, so that the fluctuations have a limited range, because of the swing of the mediastinum.

When the mediastinum is relatively fixed the fluctuations are greater and the rise in pressure is relatively more rapid and finally more abrupt. Here the encroachment of the functionating lung is less and it cannot so easily compensate for the effect of respiratory movements upon the affected side. In either case the earlier pressures will be modified by the degree of expansion of the affected lung. We have confirmed these observations by physical findings a number of times, but only once with a skiagraph, since we have only occasional opportunity of obtaining a plate.

Von Muralt finds that with a movable mediastinum the pressure rises too quickly in proportion to the size of the cavity, and that the range of fluctuation is too small; and with a fixed mediastinum the pressure rises too slowly and the fluctuations have a relatively large range. Hamman and Sloan[41] make a statement on this point which is exactly the reverse of v. Muralt's. Neither of these views appears to us to be theoretically sound.

The incidence of an effusion may be early suspected at the time of a refill because of an unexpectedly high pressure, and because of interference with the oscillations by drops of fluid entering the needle.

The ultimate pressure to be obtained will vary with the size of the cavity. As a general rule the better and greater the pneumothorax obtained, the less need be the pressure (Brauer and Spengler). The exclusion of the compressed lung from movement aimed at may possibly be obtained by an ending inspiratory pressure only slightly positive. A mean pressure of 14 to 40 mm. water will be required to compress a not too fibrous lung (Davies). One more dense will require 50 to 100 mm. mean pressure (Lillingston). Incomplete collapse because of adhesions or fibrous lung will require still higher pressures and in limited cavities 300 to 400 mm. pressure may sometimes be used with impunity (Lillingston). A mediastinum that is fixed because of adhesions will bear pressures safely which might be dangerous, both immediately and remotely, with a movable mediastinum. The comfort and well being of the patient will set for each one his own optimum pressure which can be maintained or modified with the aid of the manometer.

Reversed movements of the manometer are occasionally seen. They occur unexpectedly so that, from time to time, the phase of respiration should be definitely compared with that of the fluctuations. They are due to paradoxical movements of the diaphragm. When a low pressure obtains, the cause is a paralysis of the diaphragm on the side of the pneumothorax through which is transmitted the positive inspiratory abdominal pressure. When a high pressure obtains the diaphragm becomes concave on one side through the pressure of gas, and, aided probably by adhesions, contracts during inspiration and this produces a positive pressure (v. Muralt). In one case, with a large gas cavity, and a fixed mediastinum, we have seen another paradoxical movement over a period of several months. When the breath was held on inspiration there was a sudden rise in pressure to a point exceeding the ordinary expiration. The fluctuations on respiration were normal and the degree of

pressure, whether + or −, did not influence the phenomenon. In other cases a similar phenomenon has been seen. The *x*-ray has shown adhesions between lung and diaphragm in two such cases.

Where there is uncertainty about the presence of the needle point in the pleural space, or because adhesions modify the pressures, as shown by indefinite manometric fluctuations, some manœuvres may help to greater certainty about its position and to the creating of a freer space. If even slight oscillations (5 to 10 mm.) are present, a space of some kind exists at the needle point. Gas can then be introduced into a vein only indirectly after it has entered the tissues, but it is just with the difficult cases that an embolism may occur.

Attention has already been directed to obstruction of the needle.

Forlanini advances the needle cautiously, and at different levels presses in a little gas by pinching the tubing and by thus enlarging the space at the needle point obtains more decided readings. If there has been a separation of the pleural layers the negative pressure will become greater than if the gas has been merely squeezed into extra-pleural tissue. He has also suggested the use of a syringe, which is to be adjusted to the butt of the needle and suction made. If no blood comes gas may be introduced. Saugman advances the needle till the manometer shows that it is in the lung and then withdraws it until oscillations cease, when he applies Forlanini's syringe test. If no blood comes he forces in gas under pressure. Brauer has had accidents notwithstanding the use of the syringe. Holmgren injects a small quantity of physiological salt solution with a syringe. If the needle is in lung the patient will cough, but he will not do so if it is between the pleural layers. He may also expectorate a foamy sputum if the lung has been entered. After producing a small cavity by this procedure he forces in gas under high pressure. One very serious accident and one fatal case have, however, resulted from this procedure. He thinks in these cases and in other similar accidents recorded, a true pleural cavity was not formed.

If the needle has entered an emphysematous lung the small oscillations about a mean negative pressure are confusing. The aspiration and injection tests above mentioned should be applied; and a few drops of a strongly smelling oil in the filter will be a further help if it is decided to admit gas. The patient will notice the odour if there is escape into the lung. It has been already

stated that when the needle is in this kind of lung, gas escapes easily with a slow rise in pressure which subsequently falls slowly and steadily; when in pleural adhesions, the gas does not escape easily and the rise in pressure is abrupt with subsequent slow fall on dispersion of gas.

The suction test with the syringe is useful at refills when only a small space has been formed and the pressure has fallen so that the mean pressure is about 0.

Brauer's open method can be used when there is failure to establish a space by the more usual way.

High pressures, maintained for months during a series of injections, have been used for the formation of a cavity and remarkable compressions have finally been obtained. Saugman has used a pressure of 30 c.c. or more of water. He has never exceeded 8 c.c. Hg.; but he, with other observers, has become much more conservative. Davies places the limit at 14 c.c., Floyd at 12 c.c. of water. We have known a patient to be most comfortable during many months when the ending mean pressure was about 14 c.c. In six instances we have had misadventures, which were fortunately not serious, when we endeavoured to enlarge ineffective gas cavities. In three of these cases a leak into the mediastinum took place after cavities of about 200, 300, and 400 c.c. content had been formed, at 50, 110 and 120 mm. water pressures respectively. The first occurred at the first inflation and may have been due to injury of the lung by the needle. In a fourth case, after establishing a cavity of 700 c.c. at 200 mm. pressure, at the third injection, reversed manometric readings were noted and gas was found to have entered the abdomen. In two other cases gas escaped through the lung after small pneumothoraces of 400 and 700 c.c. had been formed at pressures of 280 mm. water each at the fourth inflation.

Emphysema, both superficial and deep, may follow the operation. The gas may escape along the needle track after high pressure or cough, or it may have been injected into wrong places. Subcutaneous emphysema of varying extent is not infrequent when high pressure has been used, or if there is much cough, especially if the needle used has been a large one. If the gas is forced between the parietal pleura and the thoracic wall, it may later be felt, or the râles heard, above the first rib and clavicle; but crackles will not be heard over the gas cavity. When the lung has been wounded gas may escape along the lung septa to the hilus with resulting emphysema of the mediastinum. The gas from the cavity may be augmented by air from the alveoli and great pressure dangerous

to life may then develop. A mediastinal emphysema causes more or less discomfort from a sense of pressure in the middle of the chest; swallowing may be painful; and emphysematous crackles may be heard under the sternum and heard or felt deep in the neck. The patient also hears râles on swallowing and the neck may become quite swollen. None of our cases of emphysema have suffered material discomfort.

The patients are always carried back to bed from the operating room after the earlier operations, where they remain until the pneumothorax has been well established. After it has been shown that the inflations are being well borne, they are allowed to walk to their rooms, except those cases in which the mediastinum is easily displaced. These patients stop in bed for twenty-four hours. For some weeks patients are kept very quiet in order to safeguard the better lung, during which time they are frequently examined, and pressures modified, if necessary, to ease it if râles appear or increase. When we are assured that it bears the extra work thrown upon it, considerable exercise may be allowed.

A careful examination of the chest is made before and after each inflation. Until collapse or compression has been established the greater interest lies with the development of the gas cavity, its effect upon the suppression of the function of the lung, the displacement of the heart and its possible embarrassment. When the affected lung has been fairly excluded from respiration, interest centres on the changes of physical signs in the better lung, resulting from the exclusion or reduction of transmitted adventitious sounds, the possible modification of percussion note, and of respiratory and voice sounds, because of the adjacent large gas cavity.

A fair estimation of the position, size and development of the pneumothorax can be obtained from percussion and auscultation; but after it has become fairly well developed one may only speculate, from the physical examination, on the degree of compression and the situation of the lung, and on the position of the heart when it has left the chest wall, in the absence of the Roentgen examination. The hyperresonant or tympanitic note enables one to define with fair accuracy the outline of the gas cavity; but very light percussion should be used at the margins, else an exaggerated idea of its extent will be obtained. True coin sound, while often present, is surprisingly frequently absent when there is even a large gas cavity. It is not usually found until after several inflations; but once present it seems to us to be independent of the pressure registered before and after the inflation. It may be found early, and after only a small

inflation in small cavities with relatively rigid, smooth walls (Saugman). The breath sounds are materially weakened after the first inflation, and become more so with each increase in the amount of gas until they may be entirely suppressed; but they are often extremely persistent. They are virtually, rather than entirely, absent in most cases. It is often surprising how little they receive amphoric modification, a fact that is some apology for the frequency with which spontaneous pneumothorax is overlooked. The heart may often be outlined after the refill; but it is not at all unusual to find no certain area of cardiac dulness and the points of maximum intensity of the sounds must then help to determine its probable position.

Over the better lung a slightly tympanitic tone may modify the percussion note, apart from the relaxed note which may sometimes be present because of too great compression. Resonance, too, may slightly alter the quality of the breath and voice sounds apart from the compensatory modification which is expected, but which is often not appreciable. The reduction in the number of râles by exclusion of transmitted sounds may suggest a dramatic improvement; but râles modified in quality may now be transmitted, while, on the contrary, a consonating quality previously lacking may be given to râles belonging to this lung and lead to confusion. It is probable that circulatory and respiratory changes in the lung may very soon influence the number of râles favourably. Râles may develop, however, as the result of too great encroachment of the inflated pleural cavity. When uncertain as to the progress of the disease in this lung the improvement in the general condition may be reassuring, and, while the pressure may be lessened as a precaution, one should not too lightly decide to abandon the pneumothorax.

The fluoroscope and skiagraph are essential to a fair understanding of the changes that have taken place on the treated side and of the actual condition of the functioning lung. The lack of them is a very real handicap also in determining the best time for refills and the degree of compression that should be maintained.

The condition of the better lung and the flexibility of the mediastinum should be the determining factors in the estimation of the pressure to be applied. The functioning lung breathes more deeply the more the other is excluded, and the less easily the more the mediastinum is shifted (Aron). A slow increase in pressure, brought to a moderate degree only, while its effect upon the better lung is watched, and while time for readjustment of the organs and of the

circulation to the changed conditions is allowed, is, we think, of greater moment that the attempting to obtain any ideal of compression for the affected lung.

The gradual method of inducing collapse of the lung described above, causes but few symptoms when the pleura is relatively free of adhesions, and the patients are scarcely conscious of changes in the chest. They may feel slight shortness of breath and become easily fatigued as the gas cavity becomes enlarged. Cough may be increased after each inflation but soon becomes reduced, and sputum, which also may be temporarily increased after inflation, lessens. Slight blood staining of the sputum has been noticed, undoubtedly due sometimes to pricking of the lung. Respiration, at first slightly increased, becomes slower if there is not too much disease in the better lung. The heart action becomes more frequent at first, but may later be slower when at rest than before the compression. It is easily accelerated on movement. If tachycardia persists after the temperature falls and after sufficient time has elapsed for adjustment of the thoracic organs to altered conditions, it is an unfavourable sign (Lillingston). Fever may be induced or increased by the operation temporarily, and must be considered a symptom of auto-inoculation. Dyspepsia, especially when the left lung is collapsed, is sometimes complained of. Hiccough was rather persistent in one such case. There is sometimes loss of weight, usually temporary, although the patient may be doing well. If adhesions are being stretched by lung pressure, pain may be severe in the chest and be widely referred to neck and head. Pain in the chest is increased by cough. Subcutaneous emphysema, if extensive, causes tenderness and hyperæsthesia and may follow high pressures or severe coughing. Internal emphysema, such as we have seen, has caused comparatively slight symptoms. Fainting, eighteen hours after the inflation, occurred with one case whose mediastinum was very movable when the ending mean pressure was 0. It happened shortly after getting out of bed for the first time. We have not seen pallor or cyanosis, and only trifling sweating. Gas can always be removed with prompt relief for any urgent symptoms, except when an open pneumothorax exists or when mediastinal emphysema is being maintained by a supply of alveolar air. More or less distressing symptoms have been described as the result of the operation; but we think they must be due largely to abrupt changes in intrathoracic conditions.

There are other complications occasionally to be ascribed to the operation. Hæmorrhages from the better lung have been re-

ported because of the increased blood pressure on tissue already damaged. Aspiration pneumonia, while a possibility, is of rare occurrence and unlikely if the pneumothorax has been gradually induced. The rapid induction of pneumothorax for severe hæmorrhage is, however, warranted. Meningitis has occasionally followed the induction of pneumothorax (Forlanini).

The outstanding complication of induced pneumothorax is serous effusion into the pleural cavity and it occurs in from 40 to 50 per cent. of all cases when the pneumothorax has been maintained for some considerable time. Some writers speculate upon the inevitableness of it in all long continued cases. Von Muralt[66] finds that in his own experience, and in that of most men of large experience, half the cases, approximately, develop effusion. The incidence varies directly with the intensity of the disease when groups of cases are compared. Its occurrence is frequently not noticed by the patient and he simply does not feel the need of a refill at the usual time. The onset may, however, be that of a more or less acute inflammatory process. The period of onset in the writers' group, after the initial operation, has been from five weeks in an acute case to twenty-two months in a chronic case. Six cases have developed it at an average period of seven months, out of twenty-six cases treated, thirteen only of these were effectively compressed for a considerable time.

The effusions must be regarded as exudates rather than transudates. In a majority of cases they are tuberculous, though Brauer[67] has also found them in non-tuberculous, bronchiectatic cases. The effusion may disappear in a few weeks or months; but it is more usually of long duration. Serous at first, it gradually becomes richly cellular, and is chemically of an inflammatory nature. Tubercle bacilli are usually found, but with difficulty, and rarely are there other organisms present. Von Muralt finds that certain persons are predisposed to pleural inflammation. Grätz[19] lays stress upon the greater ease with which a tuberculous process in the pleura can develop when the opposing protecting layer is separated from it, and Saugman thinks the development of such foci is favoured by the stretching of the pleura or adhesions. The pleura may be irritated by the constant presence of the gas; but the degree of pressure seems to be of no moment in producing effusion. Opinions are diverse on these two points. The changes produced by pressure upon the blood vessels and upon the lymphatics, and the interference with the normal physics of the pleura, do not seem to be important as the exudates are of definitely inflammatory charac-

ter. Infection from without may sometimes take place, or from within. Such an infection from within has been mentioned in the report of our cases. Chill and overexertion are the marked exciting causes. It is obvious that the parietal pleura with the lung separated from it by a layer of gas can be very easily chilled. Irritation of the pleura may possibly be a cause, and Moreland[49] especially urges the use of a fine needle as a preventative. The treatment is usually conservative as relatively few are seriously inconvenienced by the effusion, though interference in the more acute inflammations is sometimes necessary. In a number of cases the presence of fluid had a favourable effect upon the course of the disease, for which there is probably a serological explanation. The absorption of gas is retarded so that refills become less frequent. The pressure may have to be adjusted from time to time according to the intensity of the process and the size of the cavity. Refills may readily cause fever which disappears as the pressure and absorption become mutually adjusted. A relatively low pressure should be maintained in febrile cases unless the cavity be small. Adhesions may become pronounced, and later reëxpansion of the lung may be interfered with; or the satisfactory compression of the lung may become impossible because of them, or because of rapid absorption of fluid and consequent adherence of the reëxpanded lung.

When a cavity containing fluid is being inflated the gas should not be allowed to enter through the fluid. Forlanini describes a case of pleural reflex which recurred several times because this was done.

In many cases this treatment will require much patience on the part of the patient, and much time as well as patience on the part of the physician. We have not been able to give the time, and possibly have not had either the patience or technique necessary to apply the treatment successfully to those patients who do not give fair promise of success after a few trial punctures, though in three difficult cases we have at different times made twenty or more punctures for each. After nearly two years' trial of the method, in which there have been a fair proportion of successes, a number of futile attempts, most of which were inevitable, and some mishaps, we have found that the successful compressions have been usually obtained without much delay.

References (*concluded*):—

64. Aron, *Berl. Klin. Wchnschr.*, 1913. l, 7.
65. Holmboe, mentioned by Lillingston [11].
66. v. Muralt, *Beitr. z. Klin. d. Tuberk.*, 1914, Sup. Bd.
67. Brauer, mentioned by v. Muralt. [66].

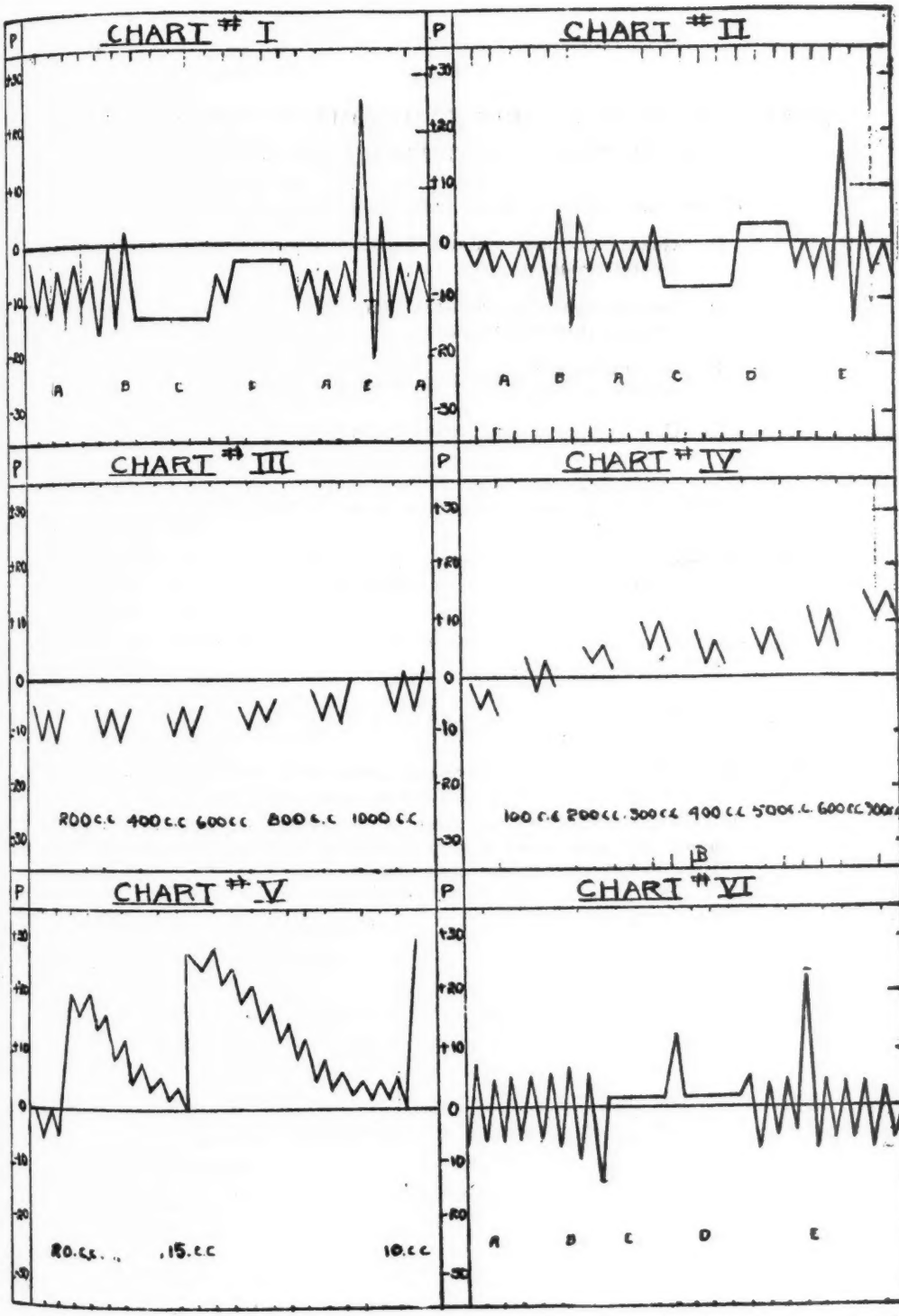
CHART # I
CHART # II
CHART # III
CHART # IV
CHART # V
CHART # VI
A B C D A E A
A B A C D E
200 c.c 400 c.c 600 c.c 800 c.c 1000 c.c
100 c.c 200 c.c 300 c.c 400 c.c 500 c.c 600 c.c
A B C D E

After v. Muralt; Beitr. z. Klin. d. Tuberk., xviii, 1910.

Note.—For explanation of charts see page 502.

EXPLANATION OF CHARTS SHOWING MANOMETRIC READINGS UNDER DIFFERENT INTRATHORACIC CONDITIONS

I. Pleural space almost completely free in a phthisical man:

A. Quiet breathing: marked negative pressure, marked fluctuations, mean pressure negative.

B. Forced breathing: increased amplitude of fluctuations, expiration giving a positive pressure.

C. Inspiration held: } Pressure remains constant.
D. Expiration held: }

E. Cough and straining: great fluctuations on either side of 0.

II. Fairly widespread adhesions of the pleura:
Letters indicate same respiratory movements as in I.

III. Changes in pressure produced by the introduction of gas into a pleural space that is fairly free from adhesions.

IV. Changes in pressure produced by the introduction of gas into a pleural space limited by adhesions.

V. A pleural space in which there is a more or less dense network of adhesions.

VI. The needle is in lung and communicates freely with bronchial air:
Letters indicate same respiratory movements as in I.
On holding the breath at any phase of respiration the pressure is not maintained but approaches 0, remaining slightly +. *When the glottis is closed, the pressure will be maintained as in* I.

ON THE OCCURRENCE OF FLUID EXUDATE IN CASES OF LOBAR PNEUMONIA

By Wm. Goldie, M.D.

Toronto

LOBAR PNEUMONIA is such a frank disease, and so distinct in type, that the diagnosis is as a rule readily and rapidly made, and in its course it rewards the observer with more minute findings than any other acute disease.

Unfortunately this wealth of signs has brought about a most deplorable result, for no adequate explanations are given of the many and variable findings.

The treatises on Physical Diagnosis and Practice seem to vie with each other in putting forward wonderful and usually impossible hypotheses. Clinical teachers are just as ingenious. The student and the practitioner can see nothing but chaos and the fancies of individuals, and he views with suspicion any new explanation. Only experience can give value to the signs he may observe. As a rule he is content to make the diagnosis, nor will he reëxamine the chest until the development of new symptoms or the delay of crisis reminds him that all may not be going well.

In this short communication I do not intent to deal with the physical laws by which the signs must be interpreted, but rather to direct attention to the occurrence of fluid exudate in the pleural sac, that complication of pneumonia, which being usually unrecognized, has been the source of many of the misinterpretations of the findings.

It has humbled all of us, and disheartened many, by its failure to give the signs and the variations of signs that the text-books state should be present. This I believe is so because the guides given are those of large amounts of fluid limited by walls under moderate tension,—such signs as are present when the consultant, the writer of books, is called in.

There are few or no guides given us by which we can determine the presence of the fluid when it is first exuded over solid lung.

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* Read at the annual meeting of the Canadian Medical Association, London, Ont., June, 1913.

How often in these cases have we heard that the pleural sac filled up to the third or second rib in twenty-four hours,—and worse, how often have we believed this statement?

To the pathologist, unversed in the lore of clinical medicine, it is inconceivable that this serous membrane should not react to inflammation as all other serous membranes do, and hence he would expect to find fluid exudate in the majority of the cases of pneumonia, and what is more, he would be justified in this expectation by his autopsy findings, for the findings of fluid are very high; the 46·4 per cent. of Norris, the 48·5 per cent. of Kerr, being examples; and these percentages he would expect to be much greater in the clinical records, when he considers how many cases die in the early acute stage before a healthy reaction could take place.

But the clinical findings do not bear out such an expectation, for clinical records vary from the 5·3 per cent. of Eyre, the 5·5 per cent. of Aufrecht, the 6 per cent. of the Toronto General Hospital, in the years 1907 and 1908, to the doubtful record of 58·3 per cent. in children of Slalowerchownikov, the belief of Reilly in 50 per cent. and the belief of Anders that some degree of effusion, though often slight, is present in practically every case of pneumonia.

The latter author points out, however, that the autopsy results show a larger number of cases of sero-fibrinous effusion than do clinical records, owing to the fact that the condition cannot often be detected during life by the physical signs. Like statements with regard to the difficulty of making a diagnosis of the presence of fluid occur in all the writings. That this should be so must mean that not sufficient attention has been paid to the conditions that must obtain as soon as a small amount of fluid has exuded into the pleural cavity over the solid lobe.

My attention was first directed to the possibilities of diagnosis of the early occurrence of fluid exudate over consolidated lung, by a repeated correction that was made by the students in making notes of their findings in frank pneumonia. Under the head of inspection and palpation, the terms "slight movement" or "less movement than on the other side" were altered to "no movement" or "hardly any movement" after percussion had revealed dullness, and auscultation, bronchial breathing.

Having made sure that the latter observations were correct, those of inspection and palpation were reviewed and there was no doubt that the first record of "slight movement," or "less movement" was correct also.

It was easy to understand why the change had been made, but

the question that presented itself was, how could there be any real movement over a large area of completely solid lung?

Surely no movement could take place over this area, where the lung was so fully distended with fibrinous exudate as to take on the markings of the ribs and interspaces. It was impossible to account for the amount of movement described in these cases unless air or fluid was present between the solid lung and the chest wall.

Other frank cases were watched from the onset, the lung became solid, the friction rub became less, and the movement was abolished, then, in a day or so, without any appreciable change within the lung, the friction was found to be absent or higher in the chest, and the movement of the chest wall was distinct. A needle was introduced and a small amount of fluid exudate was obtained. This observation was repeated from time to time in a rather desultory manner until I had become convinced that it was of value and that it, as far as I could find, had never been recorded.

During the last year the test was applied to all the cases of croupous pneumonia of pneumococcal origin which entered the service of Professor McPhedran at the Toronto General Hospital, and in nearly all cases, whether the sign was present or not, the needle was introduced for control.

Thirty-seven cases came under observation. Of these, twenty-six (26) cases gave this sign and the corroborating sign of more or less distant breathing over the lower limits of the lung; in twenty-two (22) of these, the needle was introduced and fluid obtained. In the remaining four (4) the needle was not used because of a misunderstanding.

In eight cases (8) in which this sign and the corroboratory one were absent throughout the course of the disease, no fluid could be obtained by the needle, and in three others with negative signs needling was neglected.

So constant were the results, that I presume that it is fair to include the cases not subjected to the needle in calculating the percentage. That is, in thirty-seven (37) consecutive cases of croupous pneumonia, twenty-six (26) showed the presence of fluid exudate, a percentage of 70·2 per cent., or including all the unneedled cases as negative, the percentage is 51 per cent.

The character of the movement and the amount of the movement of the chest wall can be demonstrated more readily than described. It is rarely of the expansile character and never elastic with the uneven play, but it is a definite increase in diameter and not merely the muscular tug as felt over the solid lung.

So ingrained is the idea of immobility of the chest wall where fluid exudate exists that you will at once question the possibility of movement, but for the moment discard this tradition and consider which is the most pliable, solid pneumonic lung, or fluid.

Suppose the lower part of the pleural sac were filled by a mass of plaster of paris, it is impossible to conceive of movement of a rib whose whole length lay over it; but if the same area were filled with fluid and muscular force applied to the overlying rib then surely that rib would move and bend, and the underlying fluid accommodate itself to that movement.

I do not wish to labour the question, but would beg you to make the test, and ascertain the value of the sign.

The knowledge that fluid exudate occurs in 70 per cent. of the cases of pneumonia and that a diagnosis is possible is of value, first in the light that it sheds on the slight variations in other findings, and the definite interpretations that can be made of these variations, using them to check up the increase or decrease of fluid; secondly, in explaining the atypical course and conclusion that so frequently occurs; and thirdly, in averting the disasters that come from pressure due to large effusions.

The following case illustrates not only the value of the chest wall movement as a sign of fluid, but also other points of interest.

A young man was admitted on the sixth day of illness as a frank pneumonia with a temperature of 102°, respiratory rate 34, and pulse rate of 110. On examination there was found to be dulness from the fourth rib downwards, corresponding to the middle and the lower lobes, and over this area vocal fremitus was marked and bronchial breathing was almost amphoric in quality. But the movement of the chest wall was such as could not be reconciled with solid lung, so the other findings were reviewed, both vocal fremitus and the bronchial breathing were found to be of peculiarly superficial character, as if the vibrations or sounds arose immediately beneath the skin, not giving that indefinite quality as if they had "come through." A needle was introduced and 10 c.c. of fluid withdrawn, with the result that the whole picture changed, vocal fremitus disappeared, and the breath sounds were inaudible except at the upper level.

The following day 20 c.c. of saline solution was introduced, with the result that all the original findings returned. Subsequently 62 ounces of fluid were removed.

BIBLIOGRAPHY

ANDERS and MORGAN, *J. A. M. A.*, 1911, lvii.
FORBES ROSS, *Lancet*, 1907, I. 1773.
FRALEY (cited by Anders,) *Amer Jour. Med. Sci.*, 1910, cxl, 781.
C. F. HOOVER, (discussion on paper of Anders and Morgan).
KERR (cited by Anders).
PERCY KIDD, *Lancet*, June 22nd, 1912, 1665.
MATTHES, *Med. Klin.*, September 20th, 1909.
MUSSER, *N. Y. Med. Jour.*, 1907, December 7th, 1067.
NORRIS, Osler's "Modern Medicine."
PITRES, *Archives Cliniques de Bordeaux*, 1898.
REILLY, *N. Y. Med. Rec.*, 1911, lxxix, 899.
SLALOWERCHOWNIKOV, *Deutsche Med. Wochens.*, July 4th, 1912, 1282.
FREDERICK TAYLOR, *Clin. Jour.*, January 31st, 1912, 257.
THOMAS (cited by Anders and Morgan).
WEBB, *Med. Rec. N. Y.*, 1911, lxxix, 961.

THE following is the list of contagious diseases reported in Ontario during the month of April: smallpox, 38 cases, 1 death; scarlet fever, 171 cases, 2 deaths; diphtheria, 187 cases, 15 deaths; measles, 922 cases, 5 deaths; whooping cough, 80 cases, 6 deaths; typhoid, 27 cases, 5 deaths; tuberculosis, 144 cases, 92 deaths; cerebro-spinal meningitis, 17 cases, 14 deaths.

The epidemic of measles in Hamilton has by no means subsided and, in spite of the efforts of the health authorities, numbers of fresh cases continue to appear. During April out of the 922 cases reported in the province, 485 occurred in Hamilton. During the past six or seven months diphtheria has been prevalent in Ottawa and from November to May over four hundred cases were reported and thirty-two deaths occurred. The matter has been taken up by the local board of health and at a recent meeting it was resolved that a fully qualified medical man should be appointed to deal with the epidemic, the physician appointed to work under the direction of Dr. Law, the medical officer of health, and to receive an honorarium not exceeding $175 a month. In accordance with this resolution, Dr. W. T. Shirreff, former medical officer of health of the city, was appointed on Tuesday, May 4th, for a period of three months. Dr. Shirreff assumed his duties at once.

Case Reports

A CASE OF MULTIPLE FACETTED CALCULI OF THE PENILE URETHRA

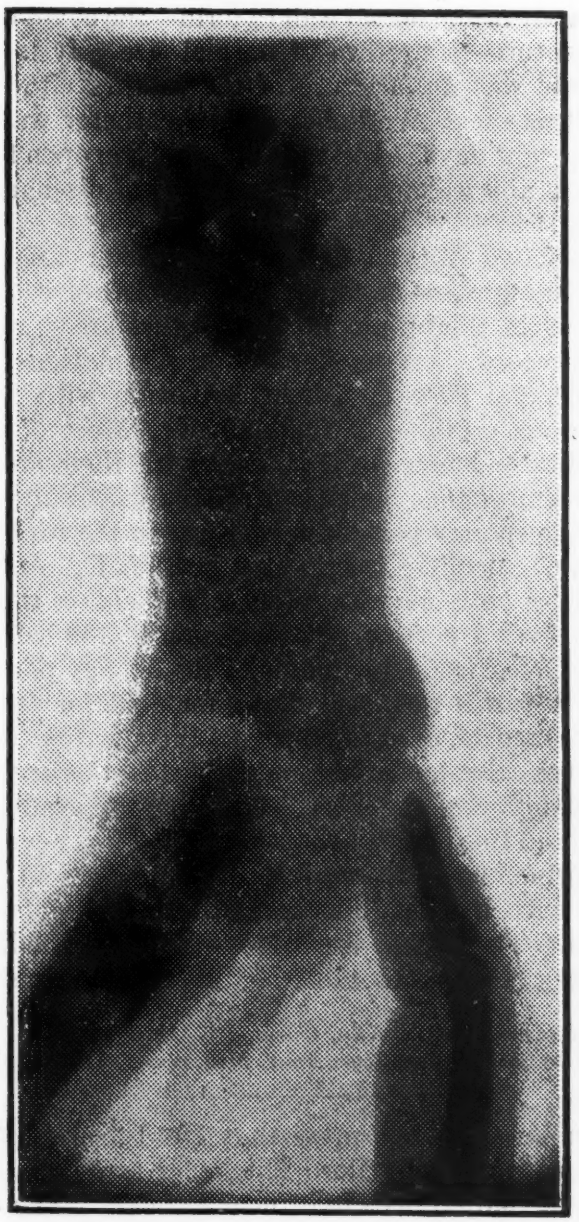
By G. M. Manning, M.D., C.M. (McGill)

Barbados, B.W.I.

THE patient, F.C. (British descent), aged 32, had been admitted to the Barbados General Hospital in January, 1910, suffering from acute retention of urine. He had contracted gonorrhœa two weeks previously, and had neglected treatment until the day before admission, when he drank a bush tea made from the leaves of a native plant called "gully root." This decoction produces intense irritation of the genito-urinary tract, congestion, strangury, and frequently hematuria, and has a local reputation for the cure of gonorrhœa. His bladder was found distended. I passed a catheter without encountering obstruction or stone, and twenty ounces of cloudy urine were withdrawn. The patient left hospital four days later, and nothing was heard of him until January 4th, 1915, when he presented himself to be treated for a swelling of the penis just anterior to the scrotum, associated with passage of very cloudy urine. This swelling was about the size of a hen's egg, and on palpation gave the same impression as does a fowl's crop when full of Indian corn. Diagnosis was made of urethral calculi, and this was confirmed by *x*-ray examination, as shown by the accompanying *x*-ray photograph.

The patient was admitted and given a mixture containing urotropin for a few days. I operated on January 9th, and removed eleven facetted stones. On passing a catheter prior to operation a stone was encountered about midway in the penile urethra. The catheter was kept in position by an assistant, to act as a guide for the urethra, and an incision was made from the tip of this catheter downwards and in the mid line of the sac for two inches. Eleven stones were removed from a smooth-walled sac, which undoubtedly was a fusiform dilatation of the urethra. This sac was about two inches in length and, in its broadest part, one and a

half inches. The corpus cavernosum was slightly altered in shape, but nearly all the bulging was lateral and anterior. A number twelve bougie was passed without obstruction, and the bladder was searched for stones, but none were found.



Skiagraph showing multiple calculi in penile uretha. Dr. Manning's case.

According to Fenwick* (Trans. Path. Soc. London, 41: 1890, 188) such multiple stones may be retained in extra-urethral sacculations. In this case there was simply a fusiform dilatation of the penile urethra containing eleven facetted calculi bathed in pus. I therefore removed the greater part of the sac, leaving a sufficient expanse of the dorsal wall to form—the edges being brought together by suture—a urethra of normal size. It is deserving of note that there was no stricture of the urethra either anterior or posterior to this sac. A number twelve catheter was passed and left *in situ* for eight days. I left the skin incision open for some little time, in case of any leakage. The patient was discharged cured on January 20th.

While isolated impacted urethral calculi are occasionally encountered, these cases of multiple formation of calculi either in sacculations or in dilatations of the urethra are so rare that each case deserves record. Cases of calculi in sacculations, if I mistake not, are in general post-scrotal, in connexion with the prostatic and membranous portions of the channel. Most of the reported cases of urethral calculus, in fact, deal with their presence in the prostatic or membranous regions. Isolated calculi are occasionally impacted in the spongy portion, sometimes in the fossa navicularis, but of multiple calculi in the spongy portion Dr. Adami tells me that he knows of only one case: there is, namely, in the Museum of St. Bartholomew's a portion of a collection of 149 calculi stated to have been removed from the middle of the spongy portion.† I can only account for this fusiform dilatation, and for the absence of occasional passage of a stone through the meatus, by supposing that a small vesical calculus became lodged in the urethra, causing a partial obstruction of the same, and that then gradual dilatation took place behind this point, so that the urethra was never completely emptied of urine, and the residual urine underwent ammoniacal fermentation with the resultant formation of these facetted phosphatic calculi. The stones are pure white, tetrahedral. I have presented the collection to the McGill Medical Museum.

* See also Lieblein, *Beitr. z. Klin. Chirurg.*, 17, 1896, 141.
† Mentioned by Ransohoff, *Jour. Amer. Med. Assoc.*, 5, 1885, 65.

It is announced in the press that Dr. Elizabeth Garrett Anderson has been invited by Lord Kitchener to establish a military hospital of five hundred beds in or near London. The hospital will be in charge of Dr. Anderson, who has been given the military rank of Major.

Editorial

THE MEETING OF THE ASSOCIATION OF AMERICAN PHYSICIANS

THE thirtieth annual meeting of the Association of American Physicians, held May 11th, 12th and 13th at Washington, D.C., under the presidency of Dr. S. J. Meltzer, was marked by a programme of more than usual extent and interest. To those who are acquainted with the work of the Association in past years, it is no new thing to say that the papers presented at the annual meeting contain the "last word" on important researches in the fields of clinical medicine, pathology, and the auxiliary sciences, carried on during the preceding twelve-month in the clinics and laboratories of the United States and Canada. If one were to confine one's medical reading to the bulky volume of the Transactions of the Association, one might fairly claim to be keeping abreast with the progress of medicine in the departments above mentioned.

In the short space at our disposal it is possible to give only a summary of the more important papers and the discussions to which they gave rise. A very laudable arrangement of the programme was the presentation of papers dealing with the same subject in groups, with the discussion following the reading of the last paper in the group. On the first day the most important papers and discussions centered round the topics "Circulation" and "Duodenum." Dr. Theodore C. Janeway gave a very clear résumé of the important contributions to clinical medicine during the past thirty years from the study of human blood pressure, and Dr. Alfred E. Cohn, who was present by invitation, discussed the present status of the electrocardiographic method in clinical medicine, illustrating his paper by diagrams showing electrocardiographic

tracings of the more important disturbances of cardiac functions. In the discussion which followed Dr. L. F. Barker emphasized the fact that electrocardiography had been of very great value in elucidating cardiac disturbances and particularly complicated and obscure forms, but stated that it was a method reserved for experts and that it could not become a routine method of examination by practitioners. There was a specially large attendance to hear the papers and discussion on "Duodenum," all the more as Dr. William J. Mayo had been invited to give his views. His contribution on "Chronic Duodenal Ulcer" summarized the experience of the "Mayo Clinic" in regard to the frequency of this condition, its symptomatology, and its surgical treatment. He first drew attention to the earlier misleading post-mortem statistics, and to the infrequency of a clinical diagnosis, of duodenal ulceration, which was often wrongly diagnosed as gastric ulcer, nervous dyspepsia, or hyperchloridria. Operating room findings, he claimed, had revolutionized our knowledge on this point, and had proved that the majority of ulcers which had been called pyloric were really duodenal—73 per cent. duodenal, and 27 per cent. gastric in his clinic. In diagnosis "history is the most important diagnostic feature, the roentgenogram second, the physical diagnosis including the use of the stomach tube third, and laboratory diagnosis a poor fourth." Disease of the gall bladder or of the appendix may also be present, blurring the picture and necessitating a differential diagnosis at the operating table. He finds the test for occult blood unreliable. Gastroenterostomy is the operation of choice, but only if the ulcer can be demonstrated should this operation follow exploration. Blockage of the pylorus is usually unnecessary. Recurrences are mostly due to improper technique. A startling statement he makes is that he has cut off more than one hundred gastroenterostomies which had been made for symptomatic ulcer where he had been unable to find evidence that there was or ever had been one—a sad reflexion on indiscriminate surgical intervention. The other side of

the picture was shown by Dr. B. W. Sippy in the "Medical cure of gastric and duodenal ulcer by means of efficient removal of gastric juice corrosion." Basing his views on the idea that a gastric or duodenal ulcer, like any other ulcer, will heal spontaneously if not subjected to intermittent or constant irritation, the irritant in this case being free hydrochloric acid, he claims, from an experience of twelve years, that a cure can be obtained by maintaining an accurate neutralization of all free hydrochloric acid during the entire time that food and its accompanying secretions are present in the stomach. Excessive nocturnal secretion is also to be controlled. Practically this is obtained by frequent feedings and the use of alkalies in carefully regulated but adequate quantities. He even maintains that recurrent duodenal ulcer in which a high grade of obstruction has developed, from spasm, or inflammatory swelling, and even when actual anatomical narrowing from indurated tissue is present, has yielded completely to such treatment. Dr. F. W. White's paper on "Observations on the use of the duodenal tube for diagnosis and treatment" demonstrated the value of this procedure in certain cases. In diagnosis it has been found most useful in diseases of the pancreas and in chronic jaundice. The procedure requires half an hour in most cases and is as safe as the use of the stomach tube. In treatment it has been used in a few cases of peptic ulcer, and in persistent vomiting of nervous or toxic origin. It is superior to rectal feeding. A thermos bottle as reservoir and the Murphy drop method are employed.

Many of the papers on "blood" topics were extremely interesting but too technical for a short review, expecially the laboratory researches of Dr. J. J. Abel on "Plasmaphaeresis," and Dr. P. Rous's paper on "The preservation in vitro of living erythrocytes." Dr. E. Libman's contribution, "Clinical studies in blood transfusion," gave rise to considerable discussion, Dr. R. C. Cabot stating that he had had good results from splenectomy in pernicious anæmia, while

Dr. Janeway favoured transfusion. Of the papers on "Serum" that of Dr. M. Nicoll, Jr., on "The treatment of tetanus with antitoxin given intraspinally" was a model of clearness and most convincing, the results being far ahead of any hitherto obtained. This paper will no doubt be published in some current medical journal and should be consulted for the details of the treatment. Dr. Rufus Cole's paper on "The treatment of acute lobar pneumonia by specific methods" was rather disappointing from the therapeutic standpoint, though entirely satisfactory as regards the classification of the varieties of the pneumococcus and the bearing of this on prognosis.

The second day was devoted mainly to "Nephritis," "Diabetes," and "Thyro-toxicosis." Of the papers on the last-named topic probably the most interesting was "The isolation in crystalline form of the iodine-containing compound occurring in the thyroid" by Dr. E. C. Kendall (by invitation), who showed electrocardiographs demonstrating the effect of this compound on the circulation in cases of myxœdema, and also large photographs of a cat showing exophthalmos and emaciation from injections of the same substance. Dr. H. A. Christian presented for himself and a number of co-workers a series of "Studies of nephritis," including the use of "renal test-meals," "diuresis in relation to diuretics," and "functional diagnosis." The main drift of the papers on diuresis was that diuretics are of little use except in such cases of renal insufficiency as are associated with cardiac disease. Diuresis resulted mainly from digitalis and forced fluids. Where there was no œdema there was no diuresis. Dr. Christian thinks little of Widal's classification of the nephritides. Dr. S. W. Lambert's paper on the "Treatment of poisoning by bichloride of mercury" was eminently practical. He advocates, in the first stage, gastric lavage with exhibition of antidote, and, in the second stage, prolonged use of the continuous rectal absorption by drip method of solutions of potash diuretics; daily lavage of stomach and colon until cessation of secretion of mercury by stomach and intestines.

It is not too much to say that the contribution of Dr. F. M. Allen on "Long fasting in diabetes," and of Dr. E. P. Joslin on "Present day treatment and prognosis in diabetes" aroused more interest than any other papers presented at this meeting. It is quite true to state that they will revolutionize the dietetic (and only satisfactory) treatment of this disease by immensely shortening its duration, and by rescuing from impending coma many an apparently desperate case. These papers must be read in full if one wishes not only to grasp their full significance but properly to carry into practice the lessons they teach. They are based on careful experimental work, and the results are so satisfactory that it should be the duty of every physician who pretends to treat diabetes seriously to become familiar with the method. In the discussion which followed there was a pretty passage of arms between the writers and a certain well-known Chicago clinican and consultant, in which the latter, who claimed priority in this method, certainly came off second best.

The Annual Association Dinner was marked by the ovation given to the oldest member, Dr. Abraham Jacobi, "the Nestor of American medicine," who, notwithstanding his eighty-odd years took part in the discussions and made one of the wisest and wittiest speeches ever heard at an Association dinner.

THE USE OF ASPHYXIATING GASES

IN one of H. G. Wells' earlier novels—"The War of the Worlds"—the invaders from Mars utilized a poisonous, heavier-than-air gas as a means of overcoming their opponents on earth. In a later novel by the same writer—"The War in the Air"—it is suggested that Germany would be the first nation to break the solemn agreements of the Hague Conference. But it was incredible that a civilized nation, whom many of us thought to be a humane people, would combine both of Wells' suggestions. German honour was already a

discounted national asset and now we learn that German humanity—for the whole nation and not this or that general is responsible for the crime—is a figment of the imagination. The Germans at Ypres have undoubtedly used means of overcoming the Allies impossible to honourable and humane men.

From the naturally confused and "telegraphic" communications received it is difficult to be certain exactly what gas has been used. Accounts differ as to its colour, and newspaper reports suggest chlorine, bromine chloride or bromine as the noxious agent. In view of the ease with which chlorine can be transported and disengaged it is probably that gas which has been used, and not compounds of chlorine, such as the bromide, the oxides, or the iodides, or the element bromine. All these give off irritating vapours much heavier than air and the symptoms produced by breathing them are much the same as in the case of chlorine. But chlorine is a gas at ordinary temperatures two and a half times heavier than air and easily liquefied under a pressure of 16·5 atmospheres, in which form it is put up in steel cylinders as a commercial article. One has to assemble but a few such cylinders comparatively, to obtain at a moment's notice large volumes of poisonous gas, which, clinging to earth by its great weight, will drift with the prevailing breeze and, even at a dilution of 1·5 parts per thousand of air, bring death to any living thing in its path.

Nor is the death a sudden and painless death, as hypocritical articles in German newspapers will have us believe. In very small doses it first produces a temporary cessation of breathing reflexly through irritation of the nasal mucous membrane. Next, when this inhibition of necessity ceases, the gas is drawn into the other respiratory passages and, on account of its solubility in moisture, it attacks the respiratory mucous membranes, producing violent catarrh. The later sequelæ are results of the disintegration of these membranes caused either by direct union of the chlorine with their pro-

teins or by the formation of hypochlorous and hydro-chloric acids and the evolution of nascent oxygen. There is frequently a purulent discharge, with inflammation, bronchitis, hæmorrhage, and broncho-pneumonia. All these symptoms have been observed in rescued soldiers. The sufferer may die before pneumonia ensues and, in the case of considerable concentration of the gas (over one in a thousand), dyspnœa, coma and death rapidly follow.

We can thus see that the employment of chlorine, in addition to the dishonour of its use, is as inhuman as it could well be. It will probably be many years before representatives of the German nation are again admitted to a Hague Conference.

But meanwhile what is to be done? Can we bring ourselves to imitate the methods of the enemy? To blow steam or atomized water from a spray into the fumes may be effective but it is to be remembered that chlorine water blisters the skin and causes acute inflammation of the conjuctiva. A combination of wet respirators and water sprays would be useful and a means of creating a violent up-draught of air some distance in front of the trenches, by means of burning gasoline or kerosene, would so dilute the cloud of vapour as to render it less noxious. Meanwhile we can take some comfort in the thought that it is but rarely that atmospheric conditions will render the use of this diabolic means of warfare possible. Already, if we can believe reports, our enemies have been caught in their own trap.

A CONTRIBUTION of $12,500 has been made by the Canadian Red Cross Society towards the equipment of a Canadian ward in the hospital now being provided at the front by the Order of St. John of Jerusalem. The medical and nursing staffs of the ward will consist of Canadians and the cost of their salaries and transportation will be met by the Canadian Red Cross. The first unit sailed from Canada on April 21st.

A MOBILE laboratory has been provided by the War Office for service with the Canadian Expeditionary Force. The laboratory which recently arrived in France, consists of a motor lorry with the most modern and complete laboratory equipment, and an automobile for the use of the staff. Lieutenant-Colonel G. G. Nasmith, of Toronto, is in charge of the laboratory; he is assisted by Dr. Rankin, provincial bacteriologist for the province of Alberta, and Dr. Arthur Ellis, of Toronto.

TYPHUS fever is said to be prevalent in the German camps, where there are British prisoners of war, at Hamburg, Zossen, Altdamm, Schneidermuhl, Cardelegen, Langensalza, Wittenburg, Zerbst, Sagan, Cassel, and Chemnitz. Professor George Cornel, so well known for his research work on tuberculosis, Professor Stanislaus von Prowazek, head of the Zoological Department of the Hamburg Seaman's Hospital and Institute for Tropical Diseases, and Professor Löffler, are said to have died of the disease.

THE sympathy of the profession goes out to Lieutenant-Colonel Ryerson in his bereavement. His eldest son, Captain George B. Crowther Ryerson, who was in his thirty-third year, was killed in the battle of Ypres; another son, Lieutenant Arthur G. Connaught, was wounded in the same battle; and Mrs. Ryerson, who was on her way to visit Lieutenant Ryerson in hospital in London, lost her life on the ill-fated *Lusitania*; fortunately, Miss Ryerson, who accompanied her mother, was rescued.

AN offer was made recently by Dr. John B. Murphy, of Chicago, of a hospital of 1,040 beds for service in England or with the British army at the front. The offer has been accepted by the War Office and the personnel is being recruited at once under the direction of Dr. James M. Neff, who will command the unit. The staff will consist of thirty-

two medical men, including three surgeons, one consulting physician, a radiographer, a clinical pathologist, an ophthalmic surgeon, and a specialist in diseases of the ear, nose and throat, and 75 fully qualified nurses. Dr. Philip S. Chancellor will accompany the hospital as consulting surgeon, and among the members of the staff will be Drs. John Edward Kelly and John G. O'Malley. An offer has also been made by Dr. William Potter, President of the Jefferson Medical College, Philadelphia, to supply the personnel of a hospital of 1,000 beds for service in France or Belgium, the staff to consist of thirty physicians and surgeons with the necessary complement of nursing sisters.

It has been suggested that the period during which members of the profession offer their services should be shortened and that a practitioner should be allowed to volunteer for six months instead of for three years or for the duration of the war. The profession has amply shown its willingness to do the utmost in its power to help at the present crisis, but there are many practitioners who do not feel justified in risking the loss of a practice that perhaps has taken years to work up, and who, in short, cannot afford to volunteer for such a length of time, unless some reasonable provision is made to enable them to reëstablish themselves in practice when their services in England or at the front are no longer required. This matter was discussed at some length at the meeting of the Council of the British Medical Association on April 28th, last, and "the opinion was expressed that the Government should itself take action to guarantee, not only proper salaries, but reasonable compensation for disturbance. A sum of £1,000 was placed at the disposal of the Chairman of Committees for the purpose of defraying any expense in connexion with steps which the Association may take to bring the matter fully to the notice of the profession and of the Government."

At the beginning of May the Canadian troops numbered 108,760; this included those at the front and those in training. The total casualties amongst the British forces, up to April 11th, were stated to number 139,347; those in the Canadian division, up to May 2nd, numbered 232 officers and 6,024 men, and since the battle of Langemarck the casualties reported number about 8,000. The lists of wounded which appear in the press daily are sufficient evidence that Canada has taken her share of the sacrifice and provision must be made for the wounded when they return. A committee has been appointed to make the necessary arrangements. Offers of private residences to be converted into convalescent homes have been received as was noted in the last issue of the Journal. In addition to those mentioned, an offer has been received from Mr. W. B. Northrup, M.P., of his residence at Belleville, and one from Mrs. J. K. L. Ross, of Montreal, of her house at Sydney, Nova Scotia; the latter has been converted into a hospital of fifty beds. Mrs. Gordon Strathy, Jr., has also offered her house at Senneville, Que., and at St. John, New Brunswick, the residence of the late John H. Parks has been offered by his daughters.

The splendid spirit of patriotism shown by members of the profession since the commencement of the war shows no abatement. There are now about four hundred Canadian doctors on active service and the recent appeal of the War Office for more volunteers has stimulated the profession to fresh efforts. From every part of the country come offers of service. In addition to those already mentioned in the Journal, the physicians of Vancouver, through Lieutenant A. S. Monroe, who is in command of the local unit of the Canadian Army Medical Corps, have offered to supply the staff of a military base hospital of 1,040 beds. The province of Saskatchewan has volunteered to supply a hospital and the physicians of Hamilton are considering a similar offer. The personnel of a base hospital of 250 beds was offered

by the University of Alberta but has been refused, as was the offer of a base hospital from Laval University; the latter, however, has since been accepted. A stationary hospital for service in France has been offered by the University of Manitoba, and a similar offer was made some time ago by the University of Dalhousie. It is announced also that the Western University, London, Ontario, intends to offer a hospital unit to the Dominion Government. The Lambton County Medical Association is willing to supply a stationary hospital when required. At present the war office needs individual doctors rather than more hospitals.

A FEW weeks ago, Dr. George E. Armstrong, of Montreal, received a request from Dr. DePage, the eminent Belgian physician and founder of the hospital at LaPanne, near Dunkirk, for a number of nurses to assist in the hospital. Although no remuneration was offered, more than the number required volunteered their services, and twenty-two were chosen by Dr. Armstrong assisted by Dr. Reddy, who took an active part in organizing the party. The equipment was provided by individual contributions, as were also over twenty cases of surgical dressings, sterilized and ready for immediate use, which the nurses took with them. The party has already arrived at LaPanne, which is just within the Belgian border. Madame DePage lost her life on the *Lusitania;* she had just completed a course of lectures in the United States and had collected $115,000 for the Belgian Red Cross Society. Professor DePage founded the International Surgical Society; he was secretary of the three congresses held in Brussels in 1905, 1908 and 1911, and in the work of organization was ably assisted by his wife. Madame DePage accompanied her husband to England in 1908 when he attended the annual meeting of the British Medical Association, and in 1913 on the occasion of the International Medical Congress in London. In April, 1914, when the International Surgical Society met in the United States, Professor DePage was chosen its presi-

dent and Madame DePage accompanied him. A desire has been intimated that a memorial be set up to her in England and it is probable that British surgeons will take some steps to this end.

THE appointment of Professor Adami to the Committee charged with the compilation of a medical history of the British Expeditionary Forces engaged in the present war was mentioned in the May issue of the JOURNAL. The Committee, under the presidency of the Director-General of the Army Medical Service, has been formed to consider the lines upon which the history should be laid down and to provide the necessary co-ordinating authority for the proposed work. It is intended that historical and statistical details of the work of the Army Medical Service and its adjuncts shall be recorded and an account given of the researches which are being made in connexion with the maintenance of the health of the military forces, the treatment of the wounded, and the diseases of military importance. Both military and civil members have been appointed for each of the chief subdivisions of the work, except in the case of the section of hygiene, for which both members are military. Authority has been given to members of the committee to elect for the various sections persons whose knowledge and experience will be of value. Lieutenant-Colonel Adami is the representative for Canada. The constitution of the committee is as follows:

Medicine:—Lieutenant-Colonel O. L. Robinson, R.A.M.C., and Professor Sir William Osler, Bart., M.D., F.R.S.

Surgery: Lieutenant-Colonel E. M. Pilcher, D.S.O., M.B., F.R.C.S., R.A.M.C., and Colonel F. F. Burghard, M.D., M.S., F.R.C.S.

Pathology and Bacteriology: Colonel Sir William B. Leishman, C.B., F.R.C.P., K.H.P., F.R.S., and Captain F. W. Andrewes, M.D., F.R.S.

Statistics: Lieutenant-Colonel H. P. W. Barrow, R.A.M.C., John Brownlee, M.D., D.Sc., and Lieutenant-Colonel W. N. Barron, M.V.O., R.A.M.C.

Hygiene and Sanitation: Colonel W. H. Horrocks, M.B., K.H.S., and Lieutenant-Colonel W. W. O. Beveridge, D.S.O., M.B., R.A.M.C.

Historical and Secretarial: Captain F. S. Brereton, R.A.M.C., and W. M. Fletcher, M.D., Sc.D., F.R.S.

THE news of the safe arrival in England of SS. *Northland* and SS. *Metagama* was received with great relief, for a certain amount of nervousness had been engendered by the loss of the *Lusitania*. The *Northland* and *Grampian* arrived at Bristol with a complement of some 3,700 troops. On the *Northland* were the 4th, 5th and 6th field ambulances, No. 2 clearing hospital, in command of Lieutenant-Colonel G. S. Rennie, and No. 3 stationary hospital. The *Metagama*, which sailed from Montreal on May 6th, carried the McGill General Hospital (No. 3), in command of Lieutenant-Colonel H. S. Birkett, the French-Canadian Stationary Hospital (No. 4), in command of Lieutenant-Colonel Arthur Mignault, and No. 5 Stationary Hospital supplied by Queen's University, in command of Lieutenant-Colonel Etherington. The University of Toronto Base Hospital (No. 4), in command of Colonel J. A. Roberts, sailed a few days later on the *Corinthian* and reached England in safety.

These hospitals, with those already established in France, are under the direction of the Canadian Army Medical Corps. The Canadian hospitals now in France comprise one at Wimereux, containing 300 beds, in command of Major McKee; one at Le Touquet, under Colonel A. T. Shillington, of Ottawa; and one of 1,014 beds at Le Tréport, in command of Lieutenant-Colonel Bridges. The military hospital at Dinard has 100 beds and is in command of Hon. Philippe Roy, Canadian Commissioner in Paris. The funds—$100,000—for this hospital were given to the French War Office by the Canadian Government. In addition there are the hospitals on the lines of communication, and accommodation for 3,000 beds is being provided at Etaples for the hospitals to be staffed by

the Universities Contingent. In England, No. 1 General Hospital, which accompanied the first contingent of the Canadian Expeditionary Forces, was established with headquarters at Bulford, under Colonel Murray Maclaren, the President of the Association. A letter from Doctor Finley, who is chief of the medical staff of this hospital, appears on another page of this issue. The Canadians have been moved from Salisbury Plain to Shorncliffe and the hospital at Bulford has been closed gradually and another has been established at Shorncliffe. No. 1 General Hospital is now stationed at Etaples. The Queen Mary Hospital at Shorncliffe, near Folkeston, Kent, and the Duchess of Connaught Hospital at Cliveden, Bucks, are both Canadian hospitals intended principally for Canadian soldiers. They are supported by subscription and the Canadian Red Cross Society is responsible for the upkeep and equipment of the Duchess of Connaught Hospital, which is under the command of Lieutenant-Colonel Gorrell, of Ottawa. The hospital at Shorncliffe is in command of Colonel Donald Armour and the staffs at both of these institutions are composed of Canadian doctors for the most part. In addition, Surgeon-General Carleton Jones is establishing convalescent homes for Canadian soldiers at Shorncliffe and in Kent, and it is announced in the press that Mrs. S. H. Fleming, of Ottawa, with the assistance of the Minister of Militia and General Jones, intends to convert Clayton Priory, near Brighton, into a convalescent home with accommodation for twenty patients. English soldiers are given two weeks' furlough during convalescence and, of course, go to their own homes, but in the case of the Canadians and other troops from overseas, homes must be provided for their reception during convalescence.

THE following additional subscriptions have been made to the Fund for the Relief of Belgian Physicians and Pharmacists: Dr. W. E. Plummer, $5.00; Dr. L. G. Pinault, $5.00; Dr. L. M. Curren, $5.00; Dr. J. A. Guy, $5.00; Dr. M. Ayer,

$10.00; Dr. Duvernet Jack, $2.00; Dr. W. D. Rankine, $25.00; Dr. E. A. Legace, $5.00; Dr. W. M. Deinstadt, $10.00; Dr. F. D. Welson, $1.00; Dr. J. A. Langis, $5.00; Dr. B. D. Dash, $1.00; Dr. H. E. Gilmour, $5.00; Dr. A. S. Lamb, $3.00; Dr. J. A. Casswell, $10.00; Dr. J. M. Baxter, $5.00; Dr. H. W. Schwartz, $5.00; Dr. A. B. Atherton, $10.00; Dr. Jas. Bearisto, $5.00; Dr. G. C. Vanwart, $10.00; Dr. W. J. Weaver, $5.00; Dr. S. F. A. Wainwright, $5.00; Dr. H. H. McNally, $10.00; Dr. D. C. Malcolm, $5.00; Dr. G. H. Field, $5.00; Dr. T. C. Lapp, $4.00; Dr. H. M. Harrison, $1.00; Dr. J. R. Irwin, $5.00; Dr. J. A. Ivey, $4.00; Dr. E. W. Hayden, $2.00; Dr. G. C. Kidd, $2.00; Mr. C. G. Johns, $5.00; Mr. A. J. Gould, $2.00; Mr. H. G. Paton, $2.00; Mr. A. W. H. Semple, $2.00; Dr. R. E. Valin, $10.00; Dr. F. P. Quinn, $5.00; Dr. E. G. Quesnel, $2.00; Dr. R. K. Paterson, $10.00; Dr. Elisabeth Embury, $2.00; Dr. R. Chevrier, $10.00; Saskatoon Pharm. Assn., $500.00; Dr. J. F. Argue, $10.00; Dr. D. M. Robertson, $10.00; Dr. R. Law, $5.00; Dr. A. S. McElroy, $10.00; Dr. T. H. Leggett, $10.00; Dr. F. W. Mohr, $5.00; Dr. I. G. Smith, $5.00; Dr. W. F. Mayburry, $10.00; Dr. C. H. Brown, $5.00; Dr. C. E. Preston, $5.00; Dr. Warren S. Lyman, $5.00; Dr. Evans, $5.00; Dr. M. H. Reynolds, $5.00; Sir James Grant, $10.00; Dr. J. D. Courtenay, $25.00; Dr. Hugh Fleming, $5.00; Dr. G. S. McCarthy, $10.00; Dr. H. B. Moffatt, $5.00; Dr. R. W. Powell, $5.00; Dr. T. A. Watterson, $5.00; Dr. C. Laidlaw, $5.00; Dr. J. T. Basken, $5.00; Dr. C. T. Ballantyne, $5.00; Dr. J. S. Nelson, $10.00; Dr. R. E. Webster, $25.00; Dr. R. S. Minnes, $10.00; Dr. J. L. Chabot, $25.00; Dr. D. T. Smith, $25.00; Dr. J. R. O'Brien, $25.00; Dr. E. M. Lambert, $25.00; Dr. E. Bourque, $3.00; Dr. R. H. Ellis, $10.00; Dr. S. M. Nagle, $5.00; Dr. R. H. Parent, $5.00; Dr. H. L. Sims, $5.00; Dr. J. H. Laidlaw, $2.00; Dr. G. E. Booth, $3.00; Dr. R. M. Coulter, $10.00; Ottawa Medical Chirurgical Society, $50.00; St. Thomas, per Dr. Lawrence, $119.00.

The following contributions have been received from

members of the Montreal Medico-Chirurgical Society up to May 10th, 1915, the total amount being $1,246.00.

Anonymous, $250.00; anonymous, $250.00; Mrs. Robert Reford, $100.00; Dr. L. L. Reford, $100.00; Sir Thomas G. Roddick, $50.00; Dr. W. G. M. Byers, $25.00; Dr. C. H. White, $25.00; Dr. W. F. Hamilton, $25.00; Dr. Alfred T. Bazin, $25.00; Dr. A. C. Garrow, $20.00; Dr. D. F. Gurd, $10.00; Dr. R. Ashton Kerr, $10.00; Dr. H. B. Cushing, $10.00; Dr. H. Oertel, $10.00; Dr. D. M. M'Kenty, $10.00; Dr. H. Muckleston, $10.00; Dr. C. K. Russel, $10.00; Dr. H. A. Sims, $10.00; Dr. J. C. Tull, $10.00; Dr. D. J. Evans, $10.00; Dr. H. L. Reddy, $10.00; Dr. J. G. McCarthy, $10.00; Dr. W. Dorion, $10.00; Dr. W. Grant Stewart, $10.00; Dr. C. M. von Eberts, $10.00; Dr. J. M. Elder, $10.00; Dr. C. S. Cross, $10.00; Dr. A. W. Haldimand, $5.00; Dr. J. L. Hargrave, $5.00; Dr. W. Jamieson, $5.00; Dr. G. Mundie, $5.00; Dr. F. T. Tooke, $5.00; Dr. C. F. Moffatt, $5.00; Dr. J. M. Rogers, $5.00; Dr. M. E. Abbott, $5.00; Dr. E. Nagle, $5.00; Dr. J. A. MacMillan, $5.00; Dr. A. de J. White, $5.00; Dr. A. E. Orr, $5.00; Dr. H. B. Carmichael, $5.00; Dr. J. A. MacDonald, $5.00; Dr. H. L. Laidley, $5.00; Dr. A. D. Stewart, $5.00; Dr. C. W. Vipond, $5.00; Dr. Thos. Cotton, $5.00; Dr. C. K. P. Henry, $5.00; Dr. A. R. Pennoyer, $5.00; Dr. A. H. Gordon, $5.00; Dr. W. L. Smythe, $5.00; Dr. W. L. Barlow, $5.00; Dr. Wm. G. Morrow, $5.00; Dr. R. E. Powell, $5.00; Dr. W. G. Hepburn, $5.00; Dr. R. B. Malcolm, $5.00; Dr. Geo. Fisk, $5.00; Dr Robt. Craig, $5.00; Dr. C. C. Gurd, $5.00; Dr. F. H. Hackett, $5.00; Dr. A. D. Irvin, $5.00; Dr. R. Kerry, $5.00; Dr. Fred. Gilday, $5.00; Dr. W. G. Reilly, $5.00; Dr. A. Schmidt, $3.00; Dr. J. D. O'Connor, $3.00; Dr. J. A. Nutter, $3.00; Dr. G. T. Ross, $3.00; Dr. Bromley Moore, $2.00; Dr. Jas. Perrigo, $2.00; Dr. J. J. McGovern, $2.00; Dr. L. S. Foster, $2.00; Dr. J. Mullally, $2.00; Dr. J. M. Fry, $2.00; Dr. G. Gellatly, $2.00.

Book Reviews

ORIGIN AND NATURE OF THE EMOTIONS. By GEORGE W. CRILE, M.D. Edited by A. F. ROWLAND. Philadelphia and London, 1915. Price, cloth, $3.00 net.

The first paper, entitled "Phylogenetic Association in Relation to Certain Medical Problems," is a summary of the results obtained from a large number of observations both experimental and clinical. These researches lead the author to conclude that in operations under inhalation, anæsthesia nerve impulses from the trauma reach the brain and bring about a physiological exhaustion and pathological change in the nerve cells. Fear in a similar way acts on the brain cells. This useless and harmful expenditure of energy may be avoided in operations by blocking the paths by which such impulses are transmitted. In another address, "Phylogenetic Association in Relation to the Emotions," the author notes that the principal phenomena of fear result from a suspension of all the functions of the brain except those that have to do with the defence of the body; only those impulses which stimulate the motor mechanism reach the brain. A similar picture is seen in Graves' disease; here there is secreted an excessive amount of some substance that activates the motor mechanism; in both instances emotional exhaustion is a consequence. The mechanism which produces pain causes laughter and crying; all three are phenomena which result from a stimulation to motor action. The pain of certain infections is necessary to keep at rest the part infected; where such fixation is not needed there is no pain. This difference is well seen in the painless exanthemata and the pyogenic infections. Emotional excitation is a primitive biological reaction for the good of the individual and has its origin in the laws of evolution. The purpose of another paper is to give the results of certain researches which show certain relations between alterations in brain functions and physical changes in the brain cells: fear, fatigue, insomnia, can lead to such changes.

In "A Mechanistic View of Psychology" Dr. Crile maintains that environment is the actual creator of man and that the human body mechanism is equipped to preserve the individual and to propagate the species.

In "A Mechanistic Theory of Disease" he postulates that the body is a mechanism responding to the stimuli given to it from without of the environment of the present, and from within by the environment of the past the memory of which is stored up in the brain. There is a long paper on "The Kinetic System" by which is meant a system evolved primarily for the transformation of latent energy into motion and into heat. It is by means of such a system that animals adapt themselves to their environment; and the organs serving this purpose are the brain, adrenals, thyroid, muscles and liver. Each organ is essential and cannot be compensated for. Such a conception explains many diseases, and may lead to a newer and more effective therapy.

The book closes with a short paper on alteration in the hydrogen ion concentration of the blood, with observations on a variety of conditions presenting a diminution in its alkalinity. This increase in the acids of the blood may explain the anæsthesia of ether, and may be actually the final cause of death.

(Swanzy's) Handbook of the Diseases of the Eye and Their Treatment. Eleventh edition. Edited by Louis Werner, M.B., F.R.C.S.I., Dublin University. H. K. Lewis, London, 1915. Price 12s. 6d. net.

This is a new edition of a well-known handbook; the first edition since the death of Sir Henry Swanzy in April, 1913, at the age of seventy. It is interesting at this time to recall the fact that Sir Henry Swanzy served as surgeon with the Prussian army in 1866. In the preface to the tenth edition it is stated that the book is mainly intended for the use of students. There is, perhaps, however, a little too much in it for the average student; but it is an admirable book for the general practitioner, and well worth a place on his shelves. The subject-matter has been brought thoroughly up to date, and especially so in the chapter on glaucoma. The so-called "Eliot operation" of trephining for glaucoma is described in detail and there is a good illustration of the Schiötz tonometer with a full account of its use. The chapter on refraction is clear and concise; the following remarks under the heading "The Management of Myopia" are worth noting: "Practical experience is here even more valuable than theory, and it shows that in a large majority of those patients whose short sight has been fully corrected in youth, and who have worn their spectacles constantly for a number of years, the myopia in many instances has not increased at all, while in a large

proportion the increase will have been moderate, and in but a small proportion, marked pernicious progress will be noted. In short, the tendency to increase of the myopia, and to organic disease, is less than in those myopes who have either worn no glasses or but partially correcting glasses."

In discussing chronic iritis, affections of the teeth are referred to as a possible cause, a fact which is often overlooked. The book is well got up and the coloured illustrations are above the average.

Books Received

The following books have been received and the courtesy of the publishers in sending them is duly acknowledged. Reviews will be made from time to time of books selected from those which have been received.

PRACTICAL HANDBOOK OF SURGICAL AFTER-TREATMENT. By ALAN H. TODD. Arnold, London, 1915. Illustrations and tables. Price 4s. 6d. net.

PRACTICAL MEDICINE SERIES. Edited by C. L. MIX. Chicago: Year Book publishers, 1915. VOLUME I. GENERAL MEDICINE. Edited by FRANK BILLINGS and J. H. SALISBURY. Price $1.50.

TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By JOHN GLAISTER. Third Edition. Illustrations and coloured plates. E. and S. Livingstone, Edinburgh, 1915. Price 15s. net.

TEXT-BOOK OF PUBLIC HEALTH (Late HUSBAND'S). By E. E. HOPE. Eighth edition, revised and enlarged. E. and S. Livingstone, Edinburgh, 1915. Price 5s. net.

THE ACUTE ABDOMEN. By WILLIAM HENRY BATTLE, senior surgeon to St. Thomas's Hospital. Second edition, enlarged and illustrated. Toronto: The Macmillan Company of Canada, Limited, 1914.

POSOLOGICAL TABLES. APPENDIX ON POISONS: INDEX OF DISEASES AND MEDICINES ARRANGED ACCORDING TO THEIR ACTIONS. By WILLIAM CRAIG, M.D., C.M., F.R.S.E., F.R.C.S. Fourth edition. Edinburgh: E. & S. Livingstone, 1915.

THE CURATIVE ACTION OF RADIUM. By DR. SIGM. SAUBERMANN, Charlottenburg. New York: Radium Limited.

ACUTE ABDOMEN. By WILLIAM HENRY BATTLE. Senior surgeon to St. Thomas, Hospital. Second edition, enlarged and illustrated. Macmillan, Toronto, 1914.

BLOOD PRESSURE IN MEDICINE AND SURGERY; A GUIDE FOR STUDENTS AND PRACTITIONERS. By EDWARD H. GOODMAN, M.D., associate in medicine in the University of Pennsylvania. Lea and Febiger, Philadelphia and New York, 1914. Price, $1.50 net.

CANCER, ITS CAUSE AND TREATMENT. By L. DUNCAN BULKLEY, A.M., M.D., senior physician to the New York Skin and Cancer Hospital. Hoeber, New York, 1915. Price, $1.50 net.

(SWANZY'S) HANDBOOK OF THE DISEASES OF THE EYE AND THEIR TREATMENT. Eleventh edition. Edited by LOUIS WERNER, M.B., F.R.C.S.I., Sen. Mod. Univ. Dublin. H. K. Lewis, London, 1915. Price 12s. 6d. net.

ESSENTIALS OF MEDICAL ELECTRICITY FOR MEDICAL STUDENTS AND NURSES. By GEORGE KNAPP ABBOTT, A.B., M.D., professor of clinical medicine, College of Medical Evangelists, Loma Linda, California. W. B. Saunders, Philadelphia and London, 1915. Price, $1.25. Canadian agents: J. F. Hartz Co., Ltd., Toronto, Ont.

INFECTION AND IMMUNITY, A TEXT-BOOK OF IMMUNOLOGY AND SEROLOGY. Third edition, revised and enlarged. By CHARLES E. SIMON, B.A., M.D., professor of clinical pathology and experimental medicine, College of Physicians and Surgeons, Baltimore. Lea and Febiger, Philadelphia, 1915. Price, $3.25 net.

LEPER HOUSES AND MEDIÆVAL HOSPITALS; BEING THE FITZPATRICK LECTURES DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS, LONDON, 5TH AND 10TH OF NOVEMBER, 1914. By CHARLES A. MERCIER, M.D., H. K. Lewis, London, 1915. Price, 1s. net.

MANUAL OF THE DISEASES OF INFANTS AND CHILDREN. Fourth edition, thoroughly revised. By JOHN RUHRAH, M.D., professor of the diseases of children in the College of Physicians, Baltimore. W. B. Saunders, Philadelphia and London, 1914. Price, $2.50. Canadian agents: J. F. Hartz Co., Ltd., Toronto, Ont.

PATHOLOGICAL TECHNIQUE, A PRACTICAL MANUAL FOR WORKERS IN PATHOLOGICAL HISTOLOGY AND BACTERIOLOGY, INCLUDING DIRECTIONS FOR THE PERFORMANCE OF AUTOPSIES AND FOR CLINICAL DIAGNOSIS BY LABORATORY METHODS. Sixth edition. By FRANK BURR MALLORY, A.M., M.D., associate professor of pathology, Harvard Medical School, pathologist to the Boston City Hospital, and JAMES HOMER WRIGHT, A.M., M.D., Sc.D., pathologist to the Massachusetts General Hospital, assistant professor of pathology, Harvard Medical School. W. B. Saunders, Philadelphia and London, 1915. Price $3.00. Canadian agents: J. F. Hartz Co., Ltd., Toronto, Ont.

PYELOGRAPHY (PYELO-URETEROGRAPHY), A STUDY OF THE NORMAL AND PATHOLOGICAL ANATOMY OF THE RENAL PELVIS AND URETER. By WILLIAM BRAASCH, M.D., Mayo Clinic, Rochester, Minn. W. B. Saunders, Philadelphia and London, 1915. Price, $5.00. Canadian agents: J. F. Hartz Co., Ltd., Toronto, Ont.

SURGERY OF THE BLOOD VESSELS. By J. SHELTON HORSLEY, M.D., Surgeon in charge of St. Elizabeth's Hospital, Richmond, Va. C. V. Mosby Company, St. Louis, 1915. Price, $4.00 net.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Volume XXXII. Edited by ARCHIBALD MACLAREN, M.D., Recorder of the Association. Printed for the Association, William J. Dornan, Philadelphia, 1914.

TEXT-BOOK OF MEDICAL CHEMISTRY AND TOXICOLOGY. Fourth edition. By JAMES W. HOLLAND, A.M., M.D., Sc.D., emeritus professor of medical chemistry and toxicology, and dean of Jefferson Medical College, Philadelphia. W. B. Saunders, Philadelphia and London, 1915. Price, $3.00. Canadian agents: J. F. Hartz Co., Toronto, Ont.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND. Volume XXXII. Edited by J. ALFRED SCOTT, M.A., M.D., F.R.C.S.I., general secretary; professor of physiology, Royal College of Physicians, Ireland. Falconer, Dublin, 1914.

WAR SURGERY. By EDMOND DELORME. Medecin inspecteur général de l'armée. Translated by H. DEMERIC, surgeon to in-patients, French Hospital, London. H. K. Lewis, London, 1915. Price 5s. net.

THE annual meeting of the Hamilton Health Association was held April 22nd. A dispensary was opened by the Association in November, 1908; at that time there were 36 patients on the visiting list of the Association; now there are 527, although some of these are no longer in need of medical attendance and only receive occasional visits. During the year ending September 30th, 1914, 2,592 patients attended at the dispensary, 2,070 visits were paid, the names of 182 patients were added to the list of those to be visited; 687 persons were examined, 214 of whom were children under fourteen years of age. In the sanatorium 201 patients were treated last year; 120 were discharged and 5 died. The building is only intended to accommodate 75 patients but at the end of April there were 94 in residence. However, the plans have been prepared for a new building which will be erected this summer. The preventorium, which is intended for the treatment of children under fifteen years of age who are suffering from tuberculosis, has already been enlarged. During the past year 71 cases received treatment; 40 were discharged and 31 were still in residence on September 30th, 1914.

Res Judicandæ

TUBERCULOSIS IN MINNESOTA

THE following communication has been received from Dr. H. W. Hill, who was formerly Director of the Institute of Public Health, in London, Ontario, and is now the Executive Secretary of the Minnesota Public Health Association:

MINNESOTA PUBLIC HEALTH ASSOCIATION
OLD CAPITOL, ST. PAUL, MINN.

Sir:

Please give the enclosed such prominence as you deem expedient in order to elicit views on and discussion of the two most crucial points in existing tuberculosis creeds,—i.e., the time of life at which, and the manner in which, infection with human tuberculosis usually occurs.

The immense practical importance of these questions to those engaged in the attempt to abolish tuberculosis is beyond dispute. Too much of the current popular teaching of to-day is inconsistent, traditional, and out of line with recent experimental work. An attempt to correlate known facts into one consistent theory is greatly needed. Should this attempt aid in achieving a consummation so devoutly to be wished, it will have attained its object.

The following questionnaire and discussion has been sent to a number of Public Health and Medical Journals and to many individuals for their consideration. Responses will be greatly appreciated.

Very sincerely yours,

H. W. HILL, M.B., M.D., D.P.H.
Exec. Sec. Minn. Public Health Assn.
Old Capitol, St. Paul, Minn.

QUESTIONNAIRE ON TUBERCULOSIS

Question 1. In your opinion is the evidence conclusive that the healed lesions, frequently reported as present in lungs of persons dying of non-tuberculous affections, are, in fact, as usually alleged,

tuberculous in origin?—(*a*) In nearly all instances? Or (*b*) In a majority of instances? Or (*c*) In some instances? Please give rough estimates of the percentage of such lesions which in your opinion are tuberculous in origin. If without personal knowledge from personal investigation, please quote the authorities on which you rely.

Question 2. In your opinion is the evidence conclusive that such of these healed lesions as may be in fact tuberculous, are due to the human tubercle bacillus as distinct from the bovine bacillus? (*a*) In nearly all instances? Or (*b*) In the majority of instances? Or (*c*) in some instances? If without personal knowledge from personal investigation, please quote the authorities on which you rely.

The significance of this inquiry may be set forth thus: The data at our disposal seems to permit two related hypotheses, based on certain statements and deductions which are recorded below; but it is necessary that these statements and deductions be checked by the actual facts. Two of the points essential to a decision are brought out in the questions above. Others may suggest themselves as you read.

First Hypothesis; On Healed Lung Lesions. In view of statements, recorded immediately following, it seems evident that children are immensely more exposed to bovine bacilli than to human bacilli; that they are more susceptible to bovine bacilli when young than when older; that therefore tuberculous lesions developed in childhood and becoming arrested, or converted into scar-tissue or calcified as age increases, are more likely to be of bovine origin than of human origin. (The crucial point evidently is: Are healed-lesion bacilli human or bovine?)

Data Supporting this Hypothesis. We may take it as established (a) That bovine tubercle bacilli are ingested pretty continuously, (although in very varying amounts), by the great majority of raw-milk drinkers, who in turn constitute the great majority of the American population; that such exposure is especially great during childhood, since milk then forms a large proportion of the diet, decreasing with increasing age.

(b) That human tubercle bacilli are ingested pretty continuously (and probably in very varying amounts), by the great majority of those intimately exposed to open cases of human pulmonary tuberculosis; but that such exposed persons constitute a comparatively small fraction of the total population; and that this fraction is especially small amongst children, since childhood exposure is

limited by the fact that the child associates usually with a comparatively limited circle of persons, therefore escaping intimate association with human tubercle bacilli unless some one in that limited circle is an open case of pulmonary tuberculosis. The exposure of children to human tubercle bacilli tends to increase with increasing age because the circle of association tends to grow progressively larger and because the age of those associated progressively increases. It very definitely enlarges rather suddenly at the age of entering business (14 to 22, say) because of the then definite change of the age of the associates from young people in school (with relatively little open tuberculosis) to older people in business, (amongst whom there is a much larger percentage of open tuberculosis).

Hence, it would seem evident that there are more bovine tubercle bacilli present in more human bodies of the average American population during any given period than there are human tubercle bacilli during a like period; and also that there are more bovine tubercle bacilli present in more children's bodies than adult bodies in an average American population during any given period.

(c) Again, we may take it as established that bovine tubercle bacilli produce clinically recognizable lesions in the lungs far less frequently than elsewhere; when such lesions occur they are nearly always in children; it seems reasonable to conclude therefore that as the age of the child increases the facility of the bacilli to develop in the body decreases* This is especially true of their facility to develop in the lung.

And that therefore bovine lesions, developed early in life, and especially in a lung, would tend to heal as age increases.

(d) It is well established that human tubercle bacilli produce clinically recognizable lesions in the lungs far more frequently than elsewhere; and that such lesions are more common in adults than in children. It would seem reasonable to conclude that increase in age of the individual may mean an increase in the facility with which the bacilli develop in the body and particularly in the lung.

And that, therefore, human lesions, developed early in life, and especially in a lung, would tend to grow worse as age increases.

Second Hypothesis; On Tuberculin Reactions: In view of statements recorded immediately following, tuberculin reactions in young children, not exposed to open cases of human pulmonary tuberculosis, are more likely to be of bovine than of human origin.

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* This may be no more than the result of acquired immunity due to the constant dosage with bovine bacilli.

Data Supporting this Hypothesis: (a) We may take it as established that the dosage with bovine tubercle bacilli is pretty continuous throughout life; that although the doses are larger in childhood, they tend to cumulate as age increases; and that this bovine infection, increasing steadily in total amount, while at the same time lessening in effective production of lesions, may explain satisfactorily the exceedingly rapid increase in prevalence of tuberculin reactions found by some investigations in non-exposed children (non-exposed to human tuberculosis) as age increases, without any need to take into account infection with the human tubercle germ. (This is in fact the exact situation amongst cattle, where infection with the human tubercle germ does not confuse the issues.) Indeed, this rapidly increasing prevalence of the tuberculin reaction does not at all parallel any correspondingly rapid increase in exposure to human tuberculosis.

(b) Notwithstanding this generally high prevalence of reaction to tuberculin amongst the population in some localities, Lampson has shown in Minnesota (a) a relatively low incidence amongst those not exposed to open human cases; (b) an excessively high incidence amongst those so exposed; and (c) an intermediate incidence (32 per cent.) amongst those associated with non-infectious human tuberculosis. His work is peculiarly valuable because it takes into account not the mere health of the individual, but the health of the associates also.

It seems, therefore, that a tenable hypothesis at present, may be thus formulated.

1. The relatively low incidence of the tuberculin reaction in healthy families may represent (1) the sum of such bovine infections (from milk) as may have existed in that family, together with (2) some casual human infection from human sources outside the family; neither of these dosages, however, being sufficiently large or continuous* to precipitate actual lesions.

2. The relatively high incidence of the tuberculin reaction in families where an open pulmonary case exists may represent (1) the sum of such bovine infection (from milk) as may have existed in that family together with (2) some casual human infection from outside of the family; but chiefly it represents (3) the very obvious, large and continuous* dosage, from the open case.

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* Continuity of dosage seems of importance to the production of infection, chiefly because it multiplies the chances of some one efficacious dose reaching and maintaining a favourable foothold. Small doses frequently repeated may tend to immunize rather than to produce lesions.

3. The intermediate incidence of the tuberculin reaction in families where non-open cases exist may be explained thus: The non-open cases, if pulmonary (and therefore probably of human origin), were evidently from the very fact of being non-open, of comparatively recent origin.* Being non-open, they could not account for the infection of their associates; being recent, the associates were probably exposed to the same source as that from which the cases contracted the disease; hence the tuberculin reactions in the associates in such instances may represent (1) the sum of such bovine infections (from milk) as may have existed in that family, together with (2) some casual infection from outside human sources, which, intermediate in dose or continuity, sufficed to produce the disease in one member but achieved only non-lesional infection amongst the remaining members. It may be noted that a similar explanation would fit where the existing case was one of non-pulmonary tuberculosis of human origin; but where the non-open case was of bovine origin, the infection of the other members of the same family from the same cow would furnish a perfectly obvious explanation.

Finally, a high incidence of tuberculin reactions found amongst children not exposed to open human tuberculosis suggests a high prevalence of tuberculosis in the milk supply.

Summary

The bovine origin of healed tuberculous lesions in human lungs and the bovine origin of tuberculin reactions in many cases, especially in children, is as reasonable an hypothesis as that now held to account for them. The present hypothesis predicates an immensely wide dissemination of the human tubercle bacillus. The validity of this hypothesis of wide dissemination has been growing less as investigation has increasingly demonstrated the limited radius of such infection from known human sources. It predicates also a wide dissemination of human tubercle bacilli to children especially, yet children, at least up to the age of fourteen, are, as shown above, peculiarly little exposed to the only important source of human tuberculosis (i.e., open pulmonary cases) as compared with adults.

* I may state that investigations made of human tuberculosis in Minnesota along strict epidemiological lines and by trained men accustomed to trace infection in other and more acute diseases have shown that adult pulmonary tuberculosis can be directly traced in the majority of instances, clinically and epidemiologically to intimate association with preceding open pulmonary cases; such exposure occurring as a rule, not in childhood, but within a general rough average of four or five years before the open stage was recognized.

The older hypothesis that infection with human tuberculosis occurs chiefly in children but develops in adult life, after a long latent period, also based on the alleged wide dissemination of the human bacillus, appears as an unnecessarily complicated hypothesis, not fitting the actual probabilities sufficiently closely.

The consideration is offered that the older hypothesis may easily have arisen from confusing two consecutive infections of very distinct although allied bacilli, having converse histories; the first or bovine infection occurring early in life with a marked tendency to disappear, leaving slight or healed lesions, and a tuberculin reaction; the second or human infection occurring later in life with a marked tendency to develop to a fatal termination, and yielding also a tuberculin reaction. Failure to distinguish between the termination of one and the beginning of the other would be a satisfactory explanation of the development of the older hypothesis.

THE Overseas Double Company, consisting of men from the different universities, and forming D Company of the 38th Battalion, under the command of Captain Gregor Barclay, went into camp at Niagara Falls on May 2nd, for two weeks; they then joined their regiment and are in training preparatory to leaving for the front with the third contingent.

A CORPS of physicians and nurses, under the command of Dr. J. William White of the University of Pennsylvania, have left New York for Paris, where they will be attached to the American Ambulance Hospital. On May 17th last, a party of 150 physicians, sanitary inspectors, and senior medical students left Baltimore for Serbia.

AN appeal has been made by Sir Edward Grey, through Sir J. Roper Parkington, for subscriptions towards the purchase of disinfectants required in Montenegro on account of the prevalence of epidemics of typhus and typhoid fever.

Obituary

DR. JOHN E. MCTAGGART, of Detroit, died in the seventy-eighth year of his age and was buried at Ridgetown, Ontario, on May 12th. Dr. McTaggart was born at Palmyra, near Ridgetown. He graduated from Buffalo University and practised first at Marine City, then at Detroit.

DR. MURDOCH MATHESON died at Waverly, New South Wales, on March 30th. Dr. Matheson, who was in the seventy-sixth year of his age, was born in Scotland. In 1849 the family came to Crinan, Ontario, and it was there that Dr. Matheson received his early education. Later he graduated from Kingston University and after practising for a short time at Alvinston, he went to Australia.

DR. DANIEL E. BERRYMAN, of St. John, New Brunswick, died May 14th, in the seventieth year of his age.

DR. WILLIAM CASE, of Hamilton, died May 16th, in the seventy-ninth year of his age.

DR. GEORGE CLARENCE GLIDDON, A.M.C., died May 11th of wounds received at Langemarck. Captain Gliddon was the son of Mr. John Gliddon, of Union, Ontario. He was twenty-five years of age. He graduated last summer from the University of Toronto and was attached to the tenth battalion C.E.F.

DR. WILLIAM P. DILLON, A.M.C., of Ottawa, was thrown from his horse and killed at Le Tréport, where he was stationed with No. 2 General Hospital. Major Dillon offered his services at the beginning of the war and was appointed to the staff of No. 2 General Hospital, which accompanied the first contingent of the Canadian Expeditionary Force. Dr. Dillon graduated from McGill University in 1904 and was in practice in Ottawa.

DR. GEORGE JERALD POTTS died at Clinton, Ontario, April 22nd, in the eightieth year of his age. Dr. Potts had practised both in Toronto and Belleville. As a young man, Dr. Potts joined the Canadian Militia and at the time of the Indian Mutiny

was surgeon to the British Consulate in Siam; he was ordered to proceed to India and served there until order was again established. He then went to China with the Anglo-French Expedition, and at the end of the campaign joined the United States Federal forces and served throughout the Civil War with the rank of Surgeon-Major. Dr. Potts was also a man of literary parts and at the time of the Sandfield Macdonald Ministry, was editor of the *Toronto Daily Leader*, the organ of the Conservative party in Ontario at that time. Dr. Potts is survived by three sons and two daughters.

Dr. William Winslow Ogden, of Toronto, died April 23rd. Dr. Ogden was born at Port Credit, Peel County, in 1837; he graduated from Victoria College in 1858, and at once went into practice in Toronto where he resided until the time of his death. In spite of physical weakness, for Dr. Ogden was never strong, his indomitable will enabled him to accomplish a great deal in the course of a long and successful career. He continued to practise his profession until four years ago. He was a lecturer on medical jurisprudence and toxicology at the Toronto School of Medicine from 1869 to 1887, when he became professor of forensic medicine at Toronto University. He acted as a trustee on the Toronto School Board for forty-five years; and he took an active interest in politics. Moreover, he was a License Commissioner for some years. He is survived by two daughters.

Dr. William St. J. Downey, of Salt Lake City, Utah, died in April. Dr. Downey was the son of the late Dr. William Stewart Downey, who practised for some time in St. Catharines, Ontario.

Dr. George N. Fish, of Toronto, died May 1st, in the forty-first year of his age. Dr. Fish, who was the son of the late Rev. Charles Fish, was born at Thornhill, Ontario; he graduated in 1898 from Trinity Medical College. In 1900 he went into practice at Brougham, and in 1906 removed to Toronto. Dr. Fish leaves a widow and one child.

Dr. J. G. Layton, of Cleveland, Ontario, died April 15th. Before studying medicine, Dr. Layton was a typesetter at London and later at Cleveland. He took up the study of medicine, graduated, and had worked up a splendid practice when he was taken ill about six years ago.

Dr. Geo. A. Black died in New York on April 15th. Dr. Black, who was forty-five years of age, formerly practised at St. John, New Brunswick; from there he went to Winthrop Highlands, near Boston, where he was in practice at the time of his death.

Dr. Charles Shupe, of Attercliffe Station, Ontario, died May, 6th in the sixty-ninth year of his age. Dr. Shupe was a graduate of Toronto University. He leaves a widow, three sons, and one daughter.

Dr. Thomas Ovens died at Newbury, Ontario, April 24th. Dr. Ovens first went into practice at Arkona; he went from there to Parkhill where he built up a large practice. In 1899 Dr. Ovens did some postgraduate work in England and at New York, and on his return to Canada went into practice at London, Ontario, as a specialist in diseases of the eye, ear, nose, and throat. He leaves two daughters and one son, Dr. Percy Ovens, of Newbury.

Dr. Cameron, of Princetown, British Columbia, died April 22nd, in the seventy-first year of his age.

News

MARITIME PROVINCES

The following candidates have successfully passed the examinations of the medical board of the province of Nova Scotia: Arthur Edward Blackett, Joseph Seaward Brean, Wyman Alexander Cameron, Fred. Thompson Densmore, Philip Michael Gittlesen, Harry Munn Godfrey, Judson Vye Graham, Eliza Kirkpatrick, Melville Krolik, Joseph Emile LeBlanc, Hugh Stewart Moore, Mason Shacknove, Robert Brandon Speer, Ralph Roscoe Withrow, Victor D. Davidson, J. Stanley Chisholm, and Lloyd R. Meech.

The sixty-second annual meeting of the Medical Society of Nova Scotia will be held at Amherst, on July 7th and 8th, next, under the presidency of Dr. C. A. McQueen, of Amherst. Among those who will contribute to the programme are: Dr. John W. Dewis, of Boston; Lieutenant-Colonel J. A. Grant, assistant direc-

tor of medical services for the Maritime Provinces, and Dr. A. G. Nicholls the recently appointed provincial pathologist for Nova Scotia.

THE New Brunswick Medical Society will meet in Fredericton on the 20th and 21st of July, next, under the presidency of Dr. G. Clowes VanWart.

DR. MCINTOSH, of Andover, New Brunswick, has received the appointment of physician of the Indian Reserve at Indian Point.

ONTARIO

DR. DARIUS A. COON has been appointed medical superintendent of the Kingston General Hospital.

IN his report on the hospitals of the province, Dr. Bruce Smith states that during the twelve months ending September 30th, 1914, 79,857 patients received treatment, the percentage of deaths was 5·93, the provincial grant to hospitals amounted to $278,187, and the total expenditure for hospital maintenance and equipment was $2,579,873. In addition to those treated in the hospitals, 2,092 persons suffering from tuberculosis received treatment in sanatoria. The deaths from tuberculosis amounted to $7\frac{3}{7}$ per cent. of the total number of deaths which occurred in the province.

THE Gore Street church at Hamilton has been converted into a military hospital. The medical officers are Captain D. G. McIlwraith and Captain W. M. Carrick. The hospital has accommodation for fifty patients. It was opened in April and on the 23rd of that month twenty-five patients from the 36th Battalion were admitted.

THE summer home of the Sick Children's Hospital was destroyed by fire on April 23rd. The home, which was situated on Toronto Island, was the gift of Mr. John Ross Robertson. The intention is to rebuild the hospital.

QUEBEC

DURING the year ending December 31st, 1914, 845 patients were admitted to the Alexandra Hospital at Montreal. The total number of cases treated was 870, including 349 cases of diphtheria, 532 cases of scarlet fever, 26 cases of measles, and 49 of erysipelas. Forty-four deaths occurred, the percentage being 5·05.

MANITOBA

DURING the month of March 487 cases of infectious disease were reported in Winnipeg. Among those were 308 cases of measles, with 5 deaths.

ALBERTA

DR. ALEXANDER FISHER has been appointed medical superintendent of the Calgary hospitals, to succeed the Rev. D. A. McKillop. Dr. Fisher has been superintendent of the Port Arthur General Hospital. His new duties, which commenced at the beginning of this month, include the direction of five hospitals.

DR. ALAN H. N. KENNEDY, of Macleod, has been appointed medical referee for the province under the Workmen's Compensation Act.

DR. EAGER has been appointed medical officer of health of the village of Empress, near Medicine Hat.

SASKATCHEWAN

THE hospital at Plenty was burnt down in the recent fire which destroyed the whole of the business section of the town.

DIPHTHERIA has been very prevalent in Regina for some time.

BRITISH COLUMBIA

DR. JAMES G. R. STONE has been appointed medical officer of health of Anyox and the surrounding district. Dr. William H. Wood, of Port Moody, has been appointed medical health officer of Ioco and district.

THE following candidates have successfully passed the examinations of the College of Physicians and Surgeons of the province of British Columbia: A. L. Crease, R. E. Coleman, W. F. Shaw and H. H. Mackenzie.

THE physicians of Vancouver have offered to supply a military base hospital of 1,040 beds for overseas service.

MEDICAL COLLEGES

Toronto University

THE resignation of Professor I. H. Cameron is announced. Professor Cameron has occupied the Chair of Surgery and Clinical Surgery in the University of Toronto since the year 1887, when he succeeded Dr. W. T. Aikins.

AMONG the numerous gifts to the University base hospital, which recently left for England, is one from A. C. Hardy, of Brockville, who has given $40,000 towards the maintenance of the hospital during the war. In addition to Mr. Hardy's contribution, subscriptions to the hospital have amounted to almost $50,000. Most of this money was spent on equipment.

Queen's University

THE following degrees have been conferred by the medical faculty of Queen's University:

Degree of M.D., C.M.: D. E. Bell, M.B., Kingston, Ontario; J. Carmichael, B.A., Collingwood, Ontario; R. D. Collier, M.B., Picton, Ontario; K. A. Denholm, B.A., Blenheim, Ontario; J. A. Dobbie, B.A., M.B., Ottawa, Ontario; W. V. Edwards, B.A., Souris, Manitoba; R. M. Filson, B.A., Kingston, Ontario; N. M. Halkett, B.A., M.B., Kingston, Ontario; C. B. Kidd, M.B., Ashton, Ontario; L. M. MacDougall, M.A., M.B., Brooklyn, N.Y.; I. R. McKendry, M.B., North Gower, Ontario; P. M. McLachlan, M.B., Lochaber Bay, Que.; R. W. McQuay, M.B., Fox Warren, Manitoba; F. X. O'Connor, M.B., Kingston, Ontario; Smith, M. T., M.B., Carleton Place, Ontario.

Degree of M.B.: G. T. G. Boyce, Georgetown, B.C.; S. E. Burnham, Port Hope, Ontario; S. H. Calnek, Kingston, Jamaica; A. H. Campbell, Welwyn, Saskatchewan; M. F. Coglon, Clarinda, Alberta; T. F. Delaney, Jockvale, Ontario; C. R. Donovan, Brockville, Ontario; J. F. Doyle, Kingston, Ontario; R. H. Fisher, London, Ontario; H. C. Hagyard, Milton, Ontario; G. A. Henry, St. Catharines; Geo. Hooper, Kingston, Ontario; J. S. Kemp, Rochester, N.Y.; D. L. Kennedy, Portsmouth, Ontario; J. H. Leeds, Galt, Ontario; Thos. Little, Kingston, Ontario; D. M. Livingstone, Collingwood, Ontario; S. H. Martin, St. Johns, Newfoundland; D. C. Matheson, Dalhousie Mills, Ontario; L. W. Nixon, Richmond, Ontario; T. V. Plews, Cobourg, Ontario; G. L. Preston, Savannah-La-Mar,

Jamaica; H. F. Preston, Kerrobert, Saskatchewan; T. D. Profitt, New Amsterdam, B.C.; W. V. Sargent, Kingston, Ontario; W. R. Stackhouse, Blyth, Ontario; C. B. Waite, Port Hope, Ontario.

Dr. W. G. Anglin, who will accompany No. 5 Stationary Hospital as chief-surgeon, has been granted the military rank of lieutenant-colonel by the Minister of Militia.

Drs. Victoria Reid, Toronto, T. H. Farrel, Utica, N.Y., and E. C. Watson, Detroit, have been elected to represent the graduates on the Council of the University. These members will serve for a period of six years.

McGill University

The annual convocation took place on Wednesday, May 12th, on which occasion the degree of M.D., C.M. was conferred upon the following candidates: G. C. Anderson, Central Square, N.Y.; C. A. Arnott, Nelson, B.C.; A. R. Bayne, Bridgetown, Barbados, B.W.I.; W. A. S. Browne, Kingston, Jamaica, B.W.I.; G. C. Burrows, Guelph, Ont.; C. E. Chapin, Philadelphia, N.Y.; H. J. Conroy, Peterborough, Ont.; W. F. Daw, Bay Roberts, Nfld.; J. P. Denny, Georgetown, British Guiana; R. E. Elliott, Rochester, N.Y.; O. E. Farley, Lowell, Mass; E. J. Fitzpatrick, Meriden, Conn.; G. T. Griffith, B.A., Sherbrooke, Que.; G. E. Hodge, Cornwall, Ont.; A. B. Hyndman, Merrickville, Ont.; J. H. Jacobs, B.A.; Caughnawaga, Que.; J. J. Knoll, Daysland, Alberta; F. L. McCarroll, Edmonton, Alberta; J. M. F. Malone, Three Rivers, Que.; A. H. Mann, Ottawa, Ont.; A. J. Martin, Ottawa, Ont.; J. H. Martin, Berlin, Ont.; H. G. Massiah, B.A., St. Lucy, Barbados, B.W.I.; W. J. E. Mingie, Montreal, Que.; H. L. Moffatt, Rialto, Cal.; E. J. Ryan, Bennington, Vermont; S. LeR. Sahler, Kingston, N.Y.; Emerson Smith, Chesterville, Ont.; A. M. J. Tanney, Iroquois, Ont.; J. A. Urquhart, Revelstoke, B.C.; J. H. West, Moncton, N.B.

The following is the prize list:

Holmes' Gold Medal for highest aggregate in all subjects forming the medical curriculum: W. A. S. Browne, Kingston, Jamaica, B.W.I.

Final Prize for highest aggregate in the fifth year subjects: H. L. Moffatt, Rialto, Cal.

McGill Medical Society Senior Prize: J. A. Urquhart, Revelstoke, B.C.

Honours in aggregate of all subjects: 1, H. L. Moffatt; 2, H. G. Massiah, B.A.; 3, J. A. Urquhart.

Medicine—Honours: 1, H. G. Massiah, B.A.; 2, H. L. Moffatt, 3, F. L. McCarroll; 4, W. A. S. Browne; 5, J. A. Urquhart.

Surgery—Honours: J. A. Urquhart.

Obstetrics—Honours: 1, G. C. Anderson; 2, J. A. Urquhart; 3, G. T. Griffith, B.A.; 4, Emerson Smith; 5, H. L. Moffatt.

Gynæcology—Honours: 1, W. A. S. Browne, 2, H. G. Massiah, B.A. and H. L. Moffatt.

Ophthalmology—Honours: 1, G. C. Anderson; 2, H. G. Massiah, B.A., and J. A. Urquhart.

Oto-Laryngology—Honours: 1, J. A. Urquhart, 2, J. J. Knoll; 3, W. J. E. Mingie and H. L. Moffatt.

Pathology—Honours: 1, Emerson Smith; 2, A. M. J. Tansy; 3, W. J. E. Mingie, H. L. Moffatt and J. A. Urquhart; 6, A. J. Martin; 7, J. H. Martin; 8, H. G. Massiah, B.A.; 9, W. A. S. Browne, R. E. Elliott, G. T. Griffith, B.A.; F. L. McCarroll, and J. M. F. Malone.

Diploma of Public Health: Arthur John Lomas, M.D., C.M., Montreal.

The *ad eundem* degree in medicine was conferred *in absentia* on Lieutenant Elston H. Lawson, R.A.M.C., a graduate of Bishop's College, who is at the front.

The honorary degree of LL.D. was conferred upon Dr. F. J. Shepherd, former dean of the faculty of medicine; Dr. F. P. Walton, former dean of the faculty of law, and Dr. C. Sarolea, the Belgian litterateur.

The convocation closed with the roll call of the McGill men who have fallen on the field of honour, and the name of W. C. Pritchard was added, a medical student who was lost on the *Lusitania*.

Dr. T. A. Starkey, professor of hygiene in the McGill University, has been gazetted Major in the Canadian Expeditionary Forces and has been authorized to organize a sanitary section of the Army Medical Corps. The unit will consist of 27 officers, non-commissioned officers, and men, in command of Major Starkey.

Dr. E. M. Von Eberts has been appointed to administer and dispense the private funds of the McGill General Hospital, which recently left Montreal *en route* for the front. Dr. Von Eberts will receive and forward donations and will transact all the private business connected with the hospital.

Dalhousie University

THE following received the degrees of M.D., C.M., at the recent convocation: Eliza Kilpatrick, A. D. Blackett, J. S. Breau, F. T. Densmore, P. M. Littleson, H. M. Godfrey, J. V. Graham, J. G. F. Heal, J. E. LcBlanc, H. S. Moore, and R. R. Withrow.

University medal (Faculty of Medicine) to J. V. Graham.

Prize given by Professor A. W. H. Lindsay for highest marks in second professional examination, D. J. MacKenzie.

Prize given by Professor D. Fraser Harris for excellence in Histology, C. J. Bain.

Manitoba University

THE University has offered to provide the personnel of a stationary hospital for service in France. If accepted by the Department of Militia, the personnel of the hospital will comprise nine physicians, seventeen nursing sisters, and eighty-one rank and file.

Alberta University

THE senate of the University of Alberta has offered to supply a base hospital of 250 beds for service in England or France. If the offer is accepted, the hospital will be organized by Captain H. H. Moshier, A.M.C., professor of physiology in the University of Alberta.

Western University

IT is proposed to erect a new medical building in the near future; the estimated cost is said to be about $100,000.

ARMY MEDICAL SERVICES

IT has been suggested that members of the profession who are not in a position to volunteer their services for a period of three years, or for the duration of the war, would be glad to serve for six months. The matter has been brought to the attention of the Minister of Militia and is receiving consideration. Were the period of service shortened, physicians going to the front would be able to resume their private practice on their return without risking its loss.

THE provincial government of Ontario has offered to establish and maintain in England a hospital of one thousand beds for the treatment of Canadians. The government is also arranging to send six motor ambulances to France.

LIEUTENANT-COLONEL J. D. COURTNEY, M.D., of Ottawa, has been appointed by the Minister of Militia as a member of the Canadian medical force at the front. Dr. Courtney is a specialist in diseases of the eye, ear, nose and throat, and will be in charge of such cases among the Canadian troops.

DR. REGINALD DE LOTBINIERE HARWOOD, of Edmonton, has been gazetted Lieutenant-Colonel and given command of the 51st Battalion, C. E. F., which is now under canvas at Sarcee Reservation, near Calgary.

MAJOR T. A. STARKEY, professor of hygiene in McGill University, has been authorized to organize a sanitary section of the Army Medical Corps. The unit will have charge of the sanitary arrangements along the lines of communication and of the water supply. The equipment will be furnished by the Government.

RECRUITING is in progress for Section A of No. 2 field ambulance. A series of ambulance depôts are in course of organization. Section A will be mobilized at Montreal under Captain H. E. Mersereau and will then proceed to Valcartier where it will do regular army medical service work with ambulance drill and training in first aid. The corps will consist of two officers and sixty-two men and, as the need arises, will furnish reinforcements for the ambulance corps now overseas.

CAPTAIN R. J. GARDINER, of Kingston, has been appointed director of medical services of No. 6 divisional area, in succession to Lieutenant-Colonel H. R. Duff, who left for the front with the 21st Battalion.

LIEUTENANT-COLONEL F. W. MARLOW has been appointed deputy assistant director of the Medical Service, or the administrative head of the medical branch of the second divisional area under Colonel J. T. Fotheringham, with headquarters at the Exhibition Camp, Toronto, in succession to Colonel Roberts who left with No. 4. General Hospital. Lieutenant J. W. S. McCullough

has been placed in charge of sanitation in succession to Dr. Amyot, who also has left with the hospital.

Dr. Warnock, M.P. for McLeod, Alberta, is in charge of Imperial remounts at Montreal.

Dr. B. E. Kelly, of Peterborough, has joined the R.A.M.C. and is stationed at Folkestone, England, pending further orders.

The following physicians have joined the Royal Army Medical Corps: Lieutenant Warren A. Dakin, superintendent of the Regina General Hospital; Lieutenants J. J. Field, J. C. Black, J. F. Ellis, and G. M. Gregoire, of Regina; Lieutenants F. H. Wheeler, C. G. Sutherland, and J. H. White, of Moose Jaw; Lieutenant H. A. Stewart of Saskatoon; Lieutenant St. John, of Virden, Manitoba; Lieutenant-Colonel R. M. Simpson, Lieutenants R. Blanchard, Charles H. Hunter, W. J. Good, and O. S. Waugh, of Winnipeg; Lieutenant McMillan, of Tarrys, British Columbia; Lieutenant-Colonel Kidd, of Trenton, Ontario; Lieutenants Chas. W. Vipond and E. Lachapelle, of Montreal.

CASUALTIES

Killed

Major W. P. Dillon, of Ottawa. (No. 2 Canadian General Hospital, Le Tréport, France. Thrown from horse.)

Captain A. C. Bastedo, Bracebridge, Ontario.

Captain George Clarence Gliddon, of Union, Ontario. (10th Battalion).

Reported Killed

Lieutenant W. Fitzpatrick, of Pipestone, Manitoba. (1st Field Ambulance.)

Wounded

Major J. L. Duval, St. John, New Brunswick. (First Field Ambulance.)

Major D. Sutherland, Norwich, Ontario. (First Infantry Brigade).

Major W. W. Nasmith, of Youngstown, near Medicine Hat, Alberta. (46th Regiment.)

Surgeon-Major G. S. Mothersill, Winnipeg. (Tenth Battalion.)

Captain Roy McGibbon, of Sherbrooke, Quebec. (1st Field Ambulance).

Lieutenant F. C. Bell, Winnipeg. (Third Field Ambulance).

Lieutenant W. L. Watt, Winnipeg. (Third Field Ambulance).

Wounded and Prisoner of War at Maintz

Lieutenant W. M. Hart, Regina. (5th Battalion.)

Learning of the imprisonment of Dr. Hart, who has been directing the anti-tuberculosis work in Saskatchewan, the members of the Saskatchewan Medical Association, of which Dr. Hart is a member, passed a resolution of sympathy for his widowed mother and expressed the hope that Dr. Hart would be permitted to return to complete the work so well begun, and, upon the completion of the provincial sanatorium, to take up his duties as medical superintendent there.

A LETTER FROM NO. 1 GENERAL HOSPITAL, C.E.F.

Netheravon, Wiltshire, *April 27th*, 1915.

DEAR SIR:—The hospital to which I am attached, No. 1 General, is one of two similar units attached to the Canadian Expeditionary Force, and is commanded by Colonel Murray Maclaren, President of the Canadian Medical Association. Starting out with equipment for 250 patients, this number has been doubled by the War Office, and, like all the Imperial General Hospitals, has now an establishment designed for 1,040 sick or injured men. That even the equipment for the smaller number of patients was obtained on such short notice in Canada reflects great credit on the Permanent Medical Staff of the Militia, and indicates a high grade of energy and efficiency.

Shortly after arriving in camp this unit was ordered to open a tent hospital on Salisbury Plain for the Canadian Contingent. All our stores, consisting of many tons of material, were shipped from Plymouth, and, with the exception of medical comforts which had been freely looted, arrived in good condition, in spite of being dragged through mud and exposed to rain. Tents form good accommodation for healthy men, but when swept by wind, drenched with rain and with the tent floor churned to mud, they do not form an ideal shelter for the sick. It is, however, only fair to state that all the more serious cases were removed promptly to a permanent hospital building at Tidworth.

The rapidly increasing number of sick, due to inclemency of the weather, soon necessitated further and more comfortable quarters, and the Manor House at Bulford, and later the Cavalry School Barracks at Netheravon, were secured. The last named was an admirable site and the buildings were well adapted for the purpose. The original tents were ultimately removed to Bulford, as sufficient accommodation could not be obtained without them. The difficulties of administration were considerably increased by

the distance separating the two principal stations, some three and a half miles, as well as by having to look after two convalescent depôts.

During the winter nearly four thousand cases were treated. On the medical side, of which I was in charge, influenza was the most prevalent disease, and although the type of malady was not specially severe, it was often the starting point for bronchitis and broncho-pneumonia. The last-named disorder was unusually prevalent and a considerable number of cases came under observation, many of them being of a severe and even fatal character. In a long hospital experience in Canada I have not seen such virulent cases in young and robust adults. The attack, often preceded by influenzal or catarrhal symptoms, was marked by fever, severe cough, profuse muco-purulent sputa, and in the severe cases cyanosis. Physical examination seldom presented signs other than those of bronchitis; exceptionally, patches of dulness, bronchial breathing and sharp crepitation. After a febrile course of three or four weeks the temperature fell by lysis, but in the severe cases urgent dyspnœa and cyanosis continued, with a good pulse until gradual respiratory failure set in. At the autopsy, section showed profuse purulent bronchitis, with a varying number of areas of consolidation. In some these areas of consolidation were so small as to suggest that the bronchial affection was chiefly responsible for the cyanosis and dyspnœa. In addition to these, some thirty cases of lobar pneumonia with a high mortality (40 per cent.) came under observation.

Acute rheumatism was exceptional, only four well-marked cases coming under this heading. There were, however, numerous cases of lumbago, sciatica, and articular and muscular pains usually regarded as allied to the rheumatic family. The most serious malady in point of severity was meningitis, of which some 45 cases occurred. Although spinal puncture and serum treatments were freely used they did not prove of any great efficacy, and there was a mortality of about 30 per cent.

It is gratifying to record that not more than six cases of typhoid occurred amongst over 30,000 young men. Such a small incidence is remarkable, and may be attributed largely to the typhoid inoculations which were very generally carried out. All the cases were mild but one, unfortunately, developed a myelitis in the upper dorsal region which ultimately proved fatal.

Quite a number of men were admitted for what was termed, for want of an exact knowledge of the condition, functional cardiac

disorder. The men were mostly young, under twenty-five or thirty, and complained of dyspnœa and precordial pain on exertion; sometimes palpitation and increased pulse-rate but seldom any irregularity. Blood pressures were normal, and physical signs presented no deviation from the normal, with the exception of one or two cases where some dilation to the right was made out. On actual tests these individuals were found short of breath, whilst the pulse became much accelerated and continued rapid for a considerable time after exertion. Improvement was extremely slow and several had to be discharged from the service.

On the surgical division under Lieutenant-Colonel Cameron a large number of operations for hernia, which had first become apparent after enlistment, were successfully carried out. Another stock operation was one for appendicitis. That surgical technique can be successfully carried out in an improvised operating room was shown by the fact that in only two cases was there any evidence of wound infection. Amongst the minor surgical cases were numerous injuries and fractures resulting from horses and occasionally from football. Foot strain was a very common manifestation of flat-foot, and many men had to be sent home owing to their inability to walk more than a few miles.

The winter's work taken as a whole presented many interesting features, although less variety than in a civil hospital, owing largely to the absence of chronic cases and to the youth of most of the patients. As the great majority of cases able to travel are sent to England from the front, it is probable that this and other similar hospitals will act more as clearing stations on the continent, and that the medical staffs will not have the satisfaction of treating their cases to a conclusion.

F. G. FINLEY.

A SERIES of educational meetings on cancer have been arranged by the Vermont State Medical Society, in coöperation with the American Society for the Control of Cancer. These meetings will take place at Rutland on June 8th, at Burlington on June 9th, at St. Johnsbury on June 10th, and at Montpelier on June 11th. Among the speakers will be Dr. F. C. Wood, director of the cancer research work of Columbia University; Dr. J. M. Wainwright, chairman of the Cancer Commission of the Pennsylvania State Medical Society; Dr. C. F. Dalton, secretary of the Vermont State Board of Health; and Dr. W. S. Bainbridge, of New York.

Canadian Literature

Original Contributions

Dominion Medical Monthly, April, 1915:

Subtentorial tumours and abscesses — C. B. Shuttleworth.

Western Canada Medical Journal, April, 1915:

Diphtheria . . . . . — A. T. Mathers.

Public Health Journal, May, 1915:

The early diagnosis of cancer . . . — W. H. B. Aikins.
German immigration and the Anglo-Saxon — P. H. Bryce.
Can insurance experience be applied to lengthen life? . . . . . — A. Hunter.
The recent Australian epidemic of small-pox . . . . . — W. E. Home.
The social aspects of medicine . . — F. Johnson, Jr.
The relation of preventable sickness to poverty . . . . . — G. I. H. Lloyd.
Inoculation and typhoid fever . . — H. Morell.
Air and ventilation . . . . . — Wm. F. Thornley.

The Canada Lancet, May, 1915:

A medical slander case in 1831 . . — Hon. Mr. Justice Riddell.
Renal calculi in women, with report of a pyelolithotomy in an unusual case . — A. C. Hendrick.
The treatment of lobar pneumonia . — J. Rogers.
Understandard lives . . . . . — J. Ferguson.
The operative treatment of acute glaucoma . . . . . — G. H. Burnham.

The Canadian Journal of Medicine and Surgery, May, 1915:

Uterine hæmorrhage in the non-pregnant uterus before the menopause . . — A. A. Macdonald.

Canadian Practitioner and Review, May, 1915:

Diffuse septic peritonitis . . .	H. A. Bruce.

Western Medical News, April, 1915:

With the Canadian Expeditionary Force .	H. Morell.
Notes of spinal anæsthesia . . .	H. T. Douglas.
The hæmorrhagic disease . . .	H. Maclean.

Medical Societies

TORONTO ACADEMY OF MEDICINE

THE following are the officers of the Academy of Medicine for the year 1915-1916: president, Dr. W. H. B. Aikins; vice-president, Dr. H. A. Bruce; secretary, Dr. J. H. Elliott; treasurer, Dr. W. A. Young; chairman of the Surgical Section, Dr. J. M. Cotton; chairman of the Medical Section, Dr. W. B. Thistle; chairman of the State Medicine Section, Dr. G. Porter; chairman of the Pædiatric Section, Dr. J. S. Graham; chairman of the Pathological Section, Dr. J. G. Fitzgerald; chairman of the Ophthalmological and Oto-Laryngological Section, Dr. C. Campbell.

The above, with the following, form the Council of the Academy: Dr. G. B. Anderson (past president), Dr. F. A. Cleland, Dr. H. J. Hamilton, Dr. E. E. King, Dr. J. McConnell, Dr. N. A. Powell, Dr. Harley Smith, Dr. C. L. Starr and Dr. D. J. Gibb Wishart.

COUNCIL OF PHYSICIANS AND SURGEONS, NEW BRUNSWICK

The annual meeting of the Council of Physicians and Surgeons of New Brunswick was held at Fredericton on March 31st. Among those present at the meeting were: Dr. T. F. Sprague, of Woodstock, Drs. Thomas Walker, L. M. Curran, W. W. White, A. F. Emery, S. Skinner, of St. John; Dr. J. D. Lewin, of St. Stephen, and Dr. G. C. VanWart, of Fredericton. The following officers were re-elected: president, Dr. W. W. White; treasurer, Dr. A. F. Emery; registrar, Dr. Skinner; auditor, Dr. Walker. The committees

appointed were: Registration, Dr. White; Dr. Skinner, examination, Dr. White, Dr. Walker, Dr. VanWart, Dr. Curren; prosecution, Dr. Curren, Dr. White, Dr. Lawson; laws, Dr. VanWart, Dr. Lawson, Dr. Sprague; matriculation examiner, Dr. H. S. Bridges; professional examiners, Dr. G. G. Melvin, Dr. W. E. Rowley, Dr. William Warwick, Dr. John S. Bentley and Dr. T. D. Walker, St. John, and Dr. W. A. Ferguson, Moncton.

LAMBTON COUNTY MEDICAL ASSOCIATION

THE regular meeting of the Lambton County Medical Association was held in the Charlotte Eleanor Englehart Hospital, Petrolea, on Wednesday, May 12th. Dr. Edward Fidlar, of the Institute of Public Health, London, read a paper on the "Limitations of laboratory diagnosis." The Association decided to organize a hospital unit and offer it for service in the present war, the unit to consist of two hundred beds, five doctors, five students, ten nurses, a staff of orderlies and stretcher bearers, and equipment. Of the twenty-five men who were present at the meeting, nine volunteered for service, namely, Drs. Morrison, Henderson, Bell, Bradley and McLean, of Sarnia; Drs. Smith and Fairbank, of Petrolea; Dr. Hubbard, of Forest; and Dr. Hicks, of Wilkesport. If accepted, the unit will be organized immediately in readiness to proceed to the front in July.

MONTREAL MEDICO-CHIRURGICAL SOCIETY

THE eighth regular meeting of the Society was held Friday, January 22nd, 1915, Dr. W. F. Hamilton, President, in the chair.

PATHOLOGICAL SPECIMENS: Series by Dr. L. J. Rhea:

1. APPENDIX: Patient aged thirty-seven, under care of Dr. Bazin. About three o'clock in the morning he was awakened by pain in the abdomen, referred to the umbilicus. At that time he took castor oil and was relieved somewhat. He got up that morning, but at about 8 o'clock had a second attack of abdominal pain associated with vomiting. During the day he had two or three more attacks but it was not until night that he had an increase in his pulse rate and a temperature, with the pain referred to the right iliac fossa. During the past two or three years he had had pain

in the abdomen from time to time, but nothing very severe. Acute appendicitis was diagnosed and he was operated upon. The specimen shows a very localized inflammatory condition. It is usually thought that an acute inflammation of the appendix is a more or less destructive process involving the whole organ, but one frequently sees that these lesions are quite sharply limited. In this specimen the lesion is localized to the tip and it is sharply marked off from the portion of the appendix distal to it. Lesions like this one are most often associated with a fæcolith but whether he had one that was passed is a question of surmise.

2. Adeno-carcinoma of rectum. Woman, aged fifty-eight, also a patient of Dr. Bazin. For two years she had attacks of diarrhœa, previous to this she was constipated. These attacks occurred at irregular intervals. There was always blood in the stool but never any pain and she always had control of her sphincters. During the last two months the diarrhœa has been quite marked and the amount of blood passed has increased. This woman was very obese and nothing could be definitely made out from palpation of the abdomen. On rectal examination a mass could be felt well up in the rectum, it protruded into the intestine but did not completely surround its lumen. The operation done in this case was a Krasky, the intestine incised well above the mass and the mass removed. There was no evidence of metastasis. The pelvic glands were not enlarged. The only thing pathologically found outside the lesion in the intestine itself was that the mesentery of the rectum was shortened and quite thick. This specimen, that of the rectum, shows that it has been opened opposite the mesenteric attachment. There is a large irregular-shaped cauliflower-like growth which does not completely surround the lumen of the intestine. When one examines it carefully one sees that the mucous membrane in places is reflected for some distance up over the edge of the mass. Examined posteriorly the tissues are thickened and there are small nodules which, when incised, prove to be tumour in the lymphatic node. These lymph nodes contained a gelatinous mucoid material. Another interesting point determined by palpation is that there is a tongue-like process of tumour tissue which passes beneath the mucous membrane to within one centimetre of the upper line of excision. The diagnosis is adeno-carcinoma. The woman is doing well.

DEMONSTRATION: Life history of *Schistosoma japonicum*, by Dr. J. L. Todd.

The specimens shown under these microscopes are interesting

in themselves, and also because they illustrate an additional proof of a truth which physicians are coming to realize more and more—that men are, after all, but animals, and are subject to very much the same diseases as those which affect the lower creation. It is for that reason that much light has been, and will continue to be, thrown upon obscure human diseases by an investigation of diseases affecting animals.

Most medical students learn, during a course in systematic biology, that a disease of sheep, called among other names liver fluke, is due to the presence in the liver of a flat worm—a fluke. The life history of that worm is extremely interesting and is mentioned by every lecturer on medical zoology. It furnishes one of the first instances in which two hosts were known to be necessary for the complete development of a parasitic animal. The eggs of the liver fluke reach the outside world with the fæces of an infected sheep. In the presence of moisture the eggs hatch out a developmental form which becomes parasitic in a water-snail. The development of the worm proceeds in the snail and a new form results which attaches itself to blades of grass and becomes encysted there. The encysted form is ingested by browsing sheep. It develops in the body of the sheep into an adult worm, and so the cycle of development of the parasite is completed. The flukes, one division of the flat-worms, are the cause of several interesting diseases in man. The one with which Canadian practitioners are most familiar is that which is commonly called bilharziasis. There are a good many men in Canada who saw service in the South African War and still suffer from cystitis depending upon their infection with *Schistosoma hematobium*, or, as it is usually called, *Bilharzia hematobium*. The precise method by which infection with *Schistosoma hematobium* is contracted is uncertain. Many persons have thought that the eggs, or the free-living embryos were ingested with drinking water. Looss, of Cairo, emphatically maintains that infection is certainly incurred by the penetration of the active, free-living miracidia through the skin of those who come in contact with water contaminated by urine or fæces containing the eggs of the *Schistosoma hematobium*. Neither of these suggestions, however, is entirely acceptable to biologists, who remember the life cycle of the sheep fluke and the way in which it is transmitted from infected to healthy animals. They always have felt that an intermediate host also probably plays a part in the development of the flukes infecting man. The specimens shown to-night demonstrate that an intermediate host, a water snail, does play a part in the development of a fluke parasitic in man.

A disease caused by a fluke, *Schistosoma japonicum*, frequently occurs in Japan and along the west coast of Asia as far south as the Philippines. Rivermen and boatmen are especially liable to suffer from the disease. It is rarely seen among those who do not work in water or in swampy districts. The disease is characterised by an anæmia, by an enlarged spleen, by a cirrhosis of the liver, and indeed, by almost any of the symptoms which might be evidence of a chronic intoxication or of the mechanical disturbance which the presence of worms within the body and organs might bring about. The disease is frequently fatal. It is diagnosed by the finding of the specific eggs in the fæces. In addition to its being quite common among people, the disease also affects cats, and it is quite possible that domestic cats furnish the reservoir from which human beings are frequently infected. The eggs of the worm are passed in the fæces of infected persons. The eggs hatch into free-swimming embryos which penetrate the bodies of a small water-snail; there they develop to form numerous free swimming bodies. These, by experiment, have been shown to have the power of penetrating the skin; having penetrated through the skin they probably find their way by means of the blood passages into the organs where their development into adult worms continues.

PAPERS: (1) Œsophagoscopy with report of cases, by Dr. Robert Craig.

DISCUSSION: Dr. W. H. Jamieson: I have noted with interest the emphasis Dr. Craig lays on the use of the œsophagoscope. It certainly is a very good aid to diagnosis and also in the surgical treatment of conditions that occur in the œsophagus. Another point of emphasis is the necessity of skill in its use. Of course gentleness is absolutely essential; if we meet with a resistance we must not try to overcome that by using extra strength. In removal of foreign bodies a certain amount of judgement must be reserved, that is, when to stop or to restrain the amount of force in trying to extract. I saw one case, reported by Dr. Armstrong, who did an œsophagotomy, in which, one week previously, the patient had swallowed a couple of gold teeth set on a triangular plate with sharp serrated edges. I could quite easily see the teeth and easily engage them, but on trying to extract them they would not move and the instrument would slip. I therefore decided it was a dangerous method of extraction and the œsophagotomy was resorted to under local anæsthesia with success, the patient making a good recovery. Another case I had where great difficulty was experienced in extracting a cent from a child's throat; it had taken

the transverse position and the mucous membrane was much swollen, indurated, and overlapping the edges of the cent. Obstruction to swallowing was quite marked and it was most difficult to get hold of the edge, but I eventually extracted it.

Dr. J. T. Rogers: I wish to congratulate Dr. Craig upon his admirable paper and there are one or two points I would like to emphasize. One is the necessity of previous *x*-ray and physical examinations of the chest. Where the foreign body does not show up in an antero-posterior plate it might be well to take a lateral skiagraph of the chest, as in this way foreign bodies, especially teeth, are much more easily seen. In the case of foreign bodies in the œsophagus, in contrast to those in the larynx, trachea or bronchi, there is usually no haste necessary so that there is plenty of time to have these preliminary examinations made. Ballooning of the œsophagus, which Dr. Craig has mentioned, is certainly of distinct advantage. In pathological conditions of the œsophagus greater skill is required and is necessary in passing the œsophagoscope for the reason that in disease the walls of the œsophagus are friable and brittle and perforation occurs much more readily than under normal conditions.

Dr. F. R. England: I have been much interested in Dr. Craig's paper and it has been my good fortune to see several of his cases. I must say that for precise work the direct visual method, which Dr. Craig advocates and has described so lucidly to-night, is the method of choice. I was present when Dr. Craig removed the pin from the child's œsophagus and was much pleased with his technique and skilful handling of the case. The *x*-ray diagnosis showed the pin in the upper part of the œsophagus. Under ether anæsthesia and the pharynx cocainized, the patient was placed in the dorsal position with the head and neck well extended and drawn over the end of the table. An elongated laryngeal speculum was introduced and the pin promptly brought into view. The shining crockery head of the pin was grasped with forceps and removed. I appreciated the demonstration particularly, for many years ago before we had the advantage of the *x*-ray and œsophagoscopy I had a case where a child had swallowed an open safety pin which lodged in the lower part of the pharynx or beginning of the œsophagus. I could just reach the pin with the finger and succeeded in removing it by grasping it with forceps, opening the pin, and straightening it out on the finger as it was withdrawn. Some damage doubtless was done to the wall but nothing serious and recovery was satisfactory. Regarding foreign bodies which have

been swallowed I think we should not be in too great a hurry to operate. Anatomically it is generally considered that a foreign body which is able to pass through the œsophagus into the stomach will also be able to pass out through the pylorus. I have had several cases where children, of four or five years of age, who have swallowed such foreign bodies as a one-cent copper coin, a twenty-five cent piece and in one case a tin whistle equally large in diameter and thicker than the coins, and in every case they were passed "per viam naturales" in the course of a few days. In one case, that of a child of four years, a cent was caught in the œsophagus and I forced it on into the stomach with a probang and it also was passed naturally on the fourth day.

Dr. A. N. Pirie: I would like to ask how the ballooning of the œsophagus is done.

Dr. R. H. Craig: In reply to Dr. England I may say that the coin of the case I reported was in the stomach four days before this patient was successfully operated upon by the general surgeon. I have never passed the œsophagoscope in this country under local anæsthesia; in all these cases I give a general anæsthetic and use the horizontal position for obvious reasons. I present this evening my expanding laryngeal speculum. By using the spine as a fulcrum the larynx can be lifted upward and held in the desired position by a fixed screw which is placed at the side and mouth of the instrument. This instrument can be used to expose the upper third of the œsophagus, as well as for laryngeal examination.

2. Tonsillectomy, by Dr. H. D. Ballon.

Discussion: Dr. R. H. Craig: I wish to congratulate Dr. Ballon upon his comprehensive paper, but I do not consider that tonsillectomy is indicated in every case of enlarged tonsils. I consider the indications for tonsillectomy are: repeated attacks of follicular tonsillitis, recurrent attacks of quinsy, and of course tuberculosis and malignant disease. I would be very loath to have every vestige of lymphatic tissue removed from my children's throats unless there was some specific cause. As to Sluder's method of enucleation it is undoubtedly the ideal one. The main principle of his operation is to lift the tonsil up on the alveolar eminence of the jaw. Bearing this in mind it can be done as well with a Mathieu's guillotine, as with his own instrument. With reference to the treatment of hæmorrhage in these cases it can be readily controlled by placing a piece of absorbent cotton, which has been dipped in an astringent, between the pillars, then clamping the

pillars. Early removal of the clamps is advisable in order to prevent sloughing.

Dr. F. R. England: It is not many years ago since a great number of small sclerosed and cystic ovaries were exhibited as pathological specimens at our meetings: we rarely see them now. Adenoids and tonsils are having their day and few children escape. The removal of adenoids and tonsils is not a long or very difficult operation, and it is certainly being very frequently practised, not only by specialists but by general practitioners. I would like to sound a note of warning by urging that the function of the tonsil is not yet well understood and that we should therefore be a little conservative in our treatment of the organ and not too ready to sacrifice it. I have found much benefit from constitutional treatment in many of these cases. The important question is: Is the organ useless and sufficiently diseased to be sacrificed with advantage to the patient?

Dr. W. H. Jamieson: This is rather a large question to decide. In a general way I do not believe of course in removing the tonsils of every child if they happen to be enlarged. If a child is subject to cold in the head that in itself is sufficient cause to remove the adenoid with the tonsils. If the child has enlarged glands in the neck I consider this due to diseased tonsils. As regards their affecting the voice their removal would have no effect whatever; if the tonsils are very large there might be some temporary alteration of the voice. I wish to congratulate Dr. Ballon for his very excellent paper and to express my personal regret that he was so hurried for time that he had to cut down his paper, but I certainly agree in the main with all he has said. As to the Sluder operation I find it a very satisfactory one and in the great majority of cases we can do a complete enucleation by that method. As far as my own opinion goes, because a child has enlarged tonsils it is not necessarily an indication for their removal, but if they are causing symptoms injurious to the child, then, in my opinion, they should be removed.

Dr. E. Hamilton White: I wish to congratulate Dr. Ballon on the interesting paper which he has given us to-night. As to the Sluder method I consider it worthy of all the praise he has bestowed on it. In my experience it has proven highly efficient and satisfactory in quite a varied range of cases. The method of pushing the tonsil through the guillotine with the finger was, I believe, developed and described independently by Mr. Pybus, a general surgeon of Newcastle, England. I was also interested in Dr. Ballon's résumé of the views held at present on the pathology of

the tonsil. In 1907 I presented a similar view in connexion with some histological work of my own done at that time. I have been much impressed by the fact that much that was then put forward by various observers in a more or less tentative manner is now definitely accepted as established fact. Certainly our knowledge of the pathology of the tonsils has made great progress in the past ten years and this has come with the development of the various operations for the complete removal of the tonsil, or tonsillectomy. Formerly much confusion arose from the varied results seen after removal of the tonsil. With the older methods a complete removal was often impossible and there was often a corresponding failure to get results. In these days of general enlightenment even the public seem to have realized at last that there is a vast difference between having adenoids and tonsils operated upon and having them removed.

Dr. M. Lauterman: I must admit that my knowledge of pathology has been shaken up a bit. I never thought it was possible that appendicitis could be caused by tonsillar infection and I am free to confess that I am still open to conviction on that point. Neither do I feel that the tonsil can be regarded as the true cause of infection of the cervical glands. I am inclined to think that the nose, teeth, mouth, and the rest of the buccal mucosa may be fully as much to blame as the tonsil; in fact there seems to be a tendency that is very human, to regard things pretty well in the light of the specialty or field that one is working in and thus it is possible to overdo it in some instances, though I confess I feel that when it is absolutely necessary it should be done. The Sluder operation appeals to me very strongly as the operation of choice representing, as it does, a distinct advance and improvement on the older methods.

Dr. J. T. Rogers: The fact that tonsils and adenoids are present is of course no reason that they should be removed, and I think it has been this indiscriminate removal that has caused odium to be cast upon the operation. But if operation is indicated, then enucleation is certainly required. The tonsil is a gland and should be treated as any other gland elsewhere in the body. Because it is situated in the fauces is no reason why it should not be treated according to ordinary surgical principles. Tonsillotomy has not given us the results we expected. It is very humiliating to the laryngologist and discouraging to his patients, to have them return, or what is more likely, to go to someone else, and complain that since their tonsil operation they are just as bad or even worse than

they were before. What is done in a tonsillotomy is to shave off more or less of the tonsil and to open up the lacunæ widely and freely, leaving behind an equally or more diseased part of the tonsil. As healing occurs the surface becomes cicatrized over, thus sealing up the lacunæ and in that way forming a perfect incubator for the growth of microörganisms. The question of the removal of the tonsils is very often determined more by their septic condition than their size. When a tonsil has lost most of its lymphoid tissue and is riddled with pus it is no longer a defence but a distinct source of danger to the organism. The protective function of the tonsil is then certainly nil. As to Dr. Ballon's series of eight cases in one family I can corroborate his statements as to the necessity for operation.

Dr. Hamilton: One question I think must be asked in forming an opinion as to whether a case should be referred to a specialist or not in regard to the tonsils is, does the enlargement form an obstruction to respiration? I have noticed defects in the chests of children with enlarged tonsils and I have thought that a great deal of benefit has been derived from the removal of this obstruction; there has been increased capacity of the chest, increase in circulation and the constitutional benefit derived thereby has been marked. Dr. Ballon has presented his subject in a concise, logical, and clear way, and has brought out his points so well that it has given place to this interesting discussion which is of benefit to all.

A WELL-DESERVED honour has been conferred by His Majesty the King upon Dr. Peterson, the principal of McGill University, who has been made Knight Commander of Saint Michael and Saint George. Another name which appears on the list of the King's Birthday honours is that of the Very Reverend D. M. Gordon, vice-chancellor of Queen's University, who has been made a Companion of Saint Michael and Saint George.

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